

NDD

**Is Microsoft Unfair?**

# your computer

MAKING YOUR MICRO WORK

FEBRUARY

1993

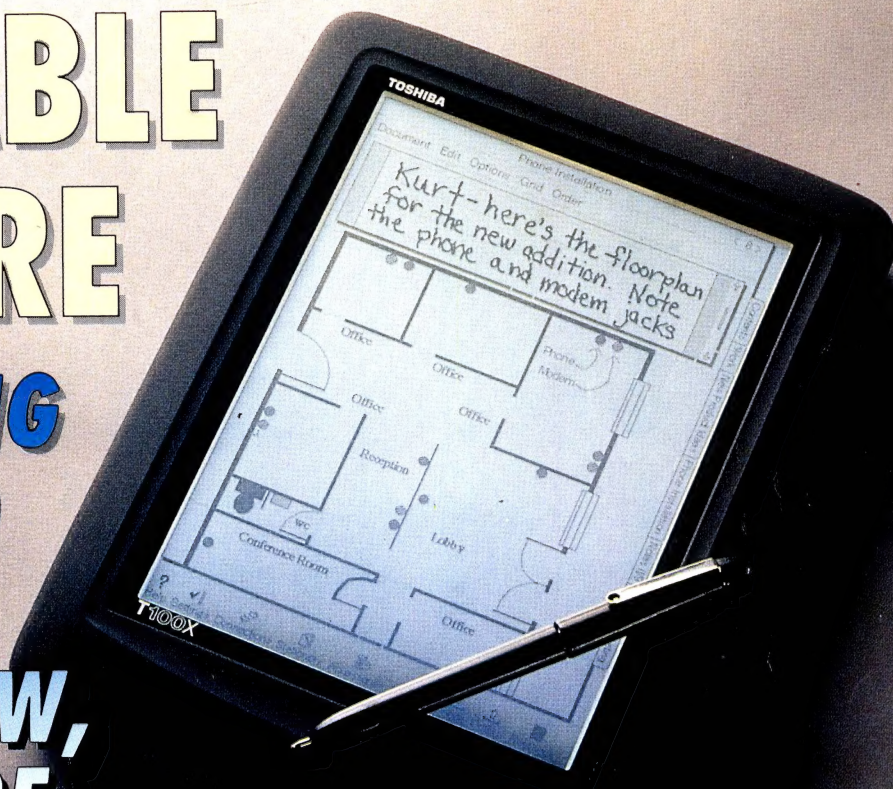
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## PORTABLE FEATURE

**COMPUTING  
ON THE GO  
TODAY,  
TOMORROW,  
THE FUTURE ...**

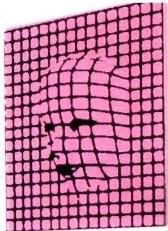


## COMPUTER OF THE YEAR THE 1993 FINALISTS

**TECH TIP**  
**Automatic  
Virus  
Protection**

**Windows Word Processors • Intel's Pentium  
DosFax • DIY Multimedia Computing  
Tips for Buying Educational Software**





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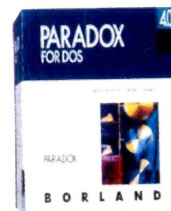
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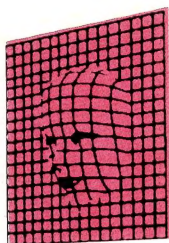
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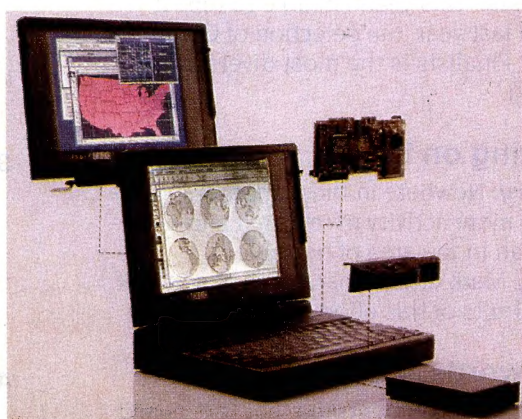
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Ho-hum: 'The year's big stories in the computer industry were plunging hardware prices and the spread (not introduction) of Windows.'

## American Graffiti

The portable office: 'People are always measured on some dimension, and if it's not output . . . then it will be likeability ratings.'

## Canberra Comment

Customs computes: 'Most government departments operate in military mode with computers, where they protect the physical equipment more than worry about the possibility of someone modeming their way into the system.'

## Industry Updates

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*The Finalists:* 'This year, I'm able to repeat what I said last year: our selection of Computer of the Year Finalists is the most diverse we've ever offered.'

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*Cover Story:* Nowhere in the computer industry is there more activity in research and development than in the area of portable computing. Mark Cheeseman looks at some of the recent fruits of this effort.

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We saw in the December issue that text-based word processors are still by far the most effective. But — the vast array of features offered in their Windows-based cousins can't be beaten. Here again, as Steve O'Brien found, price is certainly no guide to 'quality'.

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## DIY MPC

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## Programming languages

Part 1: Marcus Green gives a run-down on the various programming languages.

## Translation, please

Emulating one platform on another has always been a slow and messy exercise. Stewart Fist reports on a new and much better approach.

## Tech Tips

Automatic virus protection; Not enough memory; Over protective? XT terminal; Where did the CMOS go? More disk compression ideas; Hiding bad sectors; Floppy mismatch; Hardware basher's Bible.

## That's Entertainment

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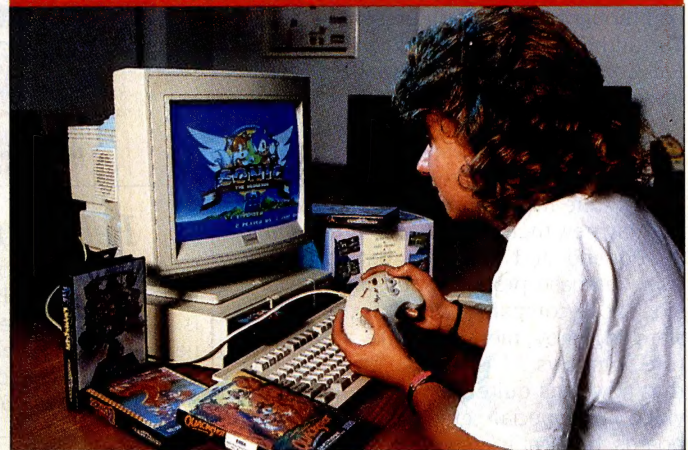
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*A-Train; Epson Connect! FoxPro 2.0; QualiType; Gestetner Hurricane; OzGis; NeXT from Canon; ISYS Windows; PKZip 2.0; ZyIndex for Windows; SimLife; ClarisWorks for Windows; Print Shop De Luxe; Enterprising screen saver; Getaway; My Product Invoices; Hurricane Upgrade kit; ZDS networking solution; NEC goes for 66; IBM Colour; Mega PC; Not the real world; MailExpress; Stacker 3.0; Genius HiScan; Fungus-free diskettes.*

## NEXT MONTH INCLUDES ...

... the Winners in the 1993 Computer of the Year Awards; Printers under \$500; Local bus technology (and reality); Windows databases.

**April:** Because of later-than-scheduled release dates, our Operating Systems feature has been held over to April; Laser printers from top to bottom.

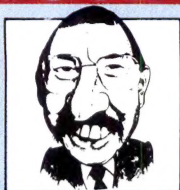
**This month's cover:** Toshiba's new 25MHz 386SX 'mobile pen computer', the T100X.

*The Australian Publication Emblem on our front cover proudly signifies that our editorial content, with the exception of overseas news items, is wholly produced and edited in Australia.*

## THAT'S ENTERTAINMENT 102







**JAKE KENNEDY**

# Ho-hum . . .

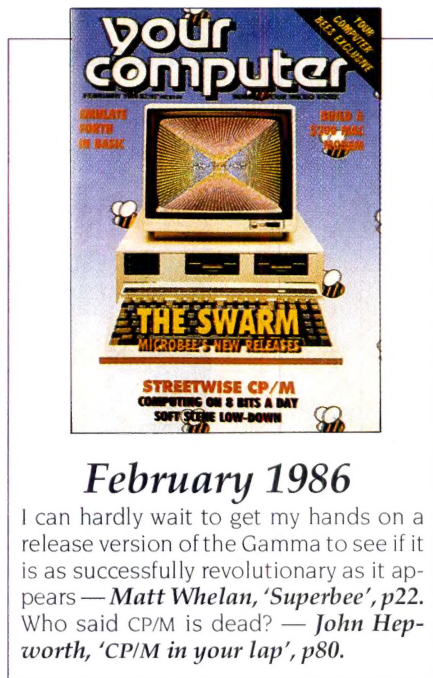
**W**HILE RESEARCHING the background for this year's Computer of the Year — the 1993 Finalists are in this issue, starting on page 26 — I re-read an editorial in Newsbytes which pretty well summed up the last twelve to eighteen months in the personal computer industry, so I thought it was worth presenting here. The author, John McCormick, is discussing Fall Comdex in Las Vegas, but that doesn't lessen the relevance —

'The TV news is running stories about the fantastic new multimedia products [at Comdex], but those aren't new. Pen computers were hither and 'yawn' but there is nothing new there either.

'Borland and Microsoft butted heads over database products. For anyone outside those companies, their rivalry makes watching snow melt seem like an adventure. Windows 3.1 is a viable environment that now runs quite well using direct bus video or special graphics accelerator boards, but that is also old news.

'There just weren't any barn-burners. Andrew Grove removed the greatest potential excitement from Comdex a couple of months ago when he announced that the next super chip from Intel would be called the Pentium, not the 80586.

'I have a theory. Everything useful has already been invented! Not literally, of



## February 1986

I can hardly wait to get my hands on a release version of the Gamma to see if it is as successfully revolutionary as it appears — **Matt Whelan, 'Superbee', p22.** Who said CP/M is dead? — **John Hepworth, 'CP/M in your lap', p80.**

course; there will always be new developments, and after a year or so's rest we will again begin to see exciting new products.

'Mainframe computer power now comes in desktop-sized packages that can be had for as little as \$1500. If you want a computer that can recognise speech, don't wish for it; just buy a speech recognition board. Opti-

cal character recognition actually works and has for some time; it even works with fax boards. Processors are so fast that programmers no longer need to create efficient code.

'Modems operating at 14,400bps are so common that it is unusual to see one offered *without* built-in fax capability. Notebook computers are now light enough. Just what do you want that the computer industry doesn't already offer? Home automation?

'If you want it, controls for every light and appliance in your home are readily available, along with computer software to control them. What about a program that gives your eyes a rest by actually reading on-screen text out loud? Those have also been around for years.

'I could go on, but you get the idea — you name it and someone is probably ready to sell it in one form or another. Virtually every 'big' announcement at this year's Comdex involved a small incremental improvement in some existing product.

'The year's big stories in the computer industry were plunging hardware prices and the spread (not introduction) of Windows, mostly because of bundling deals.

'Never fear! This industry is not dying; it's just pausing for a well-deserved rest.'

— **John McCormick**

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# Technology Update

## QualiType Value Pack

A superb collection of useful extras for every Windows user

Windows is a great environment to work in. It's easy to use and has lots of features. But you might also have noticed that it's short on a few conveniences that would be nice to have, in business as well as at home.

The QualiType Value Pack provides such conveniences with a number of very useful and worthwhile features for only \$199.

### 150 Outstanding Typefaces

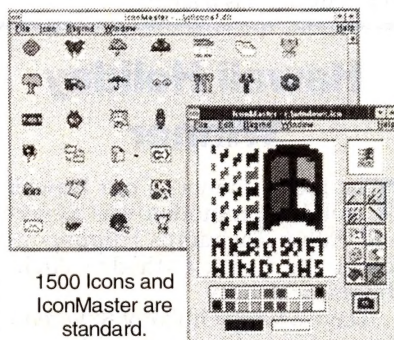
The QualiType font library contains 150 typefaces in popular text and unique decorative styles. It's a great collection of fonts for the beginner as well as for advanced desktop publishers and word processor users.

Some of the fonts are used in this document. The Update banner is QT Hoboken, as is the above subhead. The article heading is QT Beckman.

No longer will you have to settle for Windows' basic built-in TrueType fonts. The QualiType font library will give you all the popular and unusual

styles you need to create noticeable letterheads, correspondence, memos, flyers, newsletters, ads and brochures on any printer supported by Windows 3.1. (These fonts are also available in Adobe Type 1 format.)

The QualiType Viewer is included FREE to let you preview a sample of all your installed fonts. Plus you get ...



1500 Icons and IconMaster are standard.

### 1500 Windows Icons

The 1500 icons come in seven \*.DLL libraries for easier storage and access. With an icon for just about everything you can think of, you can customise and personalise your Windows to make it look just the way you want.

You also get a copy of IconMaster, a program that lets you change any icon or create your own from scratch ... even the ones embedded in Windows EXE files!

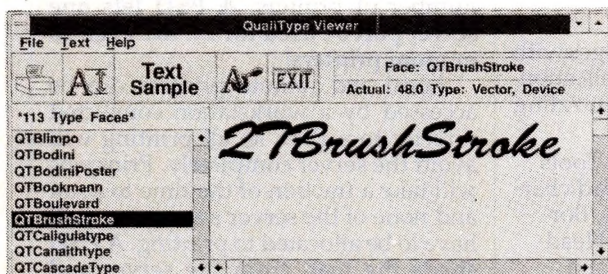
### Plus 50 Sounds

To make your PC more fun to use, you also get 50 sound effects ranging from a cartoony "Boink!" to a piercing scream. You don't even need a sound card. Just play them through your PC's speaker using Microsoft's PC Speaker Driver (also included FREE).

In short, the QualiType Value Pack is top value for any Windows user.

QTabbie	QT Boulevard
QTagateType	2T BrushStroke
Bold	QTCaligulatype
Italic	QTCanaithtype
QTAncient Olive	QTCascadeType
Bold	QTCaslan
QTAntiquePost	Bold
Arabian	Italic
QTArnieB	BoldItal
QTArtislon	QTCaslanOpen
QTAtchen	QTCasual
QTAvanti	QTChanceryType
Italic	Bold
QTBasker	Italic
Bold	QTChicagoLand
Italic	QTClayTablet
QTBeckman	QTClisteredFont
QTBengal	QTCoronation
Bold	QTDevice
QTBlackForest	(QTDingBits)
QTBlimp	QTDoghaus
QTBodini	QTDoghausHeavy
Bold	QTDoghausLight
Italic	QTDublinish
QTBodiniPost	QTEraType
Italic	Bold
QTBookmann	QTEurotype
Bold	

A few of the 150 QualiType fonts.



The QualiType Viewer lets you preview and print all your fonts.

### Where Do You Get It?

Everything you see in the LOGO Technology Update is available on short notice.

Call or fax now for the name of your nearest dealer or to place your order. (Include \$15 for delivery and handling.)

**LOGO Computer Centre**

PO Box 175 Brookvale NSW 2100

Phone (02) 905 1844 Fax (02) 905 6408

Cash Cheque Bankcard Mastercard Visa

## Other Topics

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## MailExpress Special Editions

### Quick and easy customer contact through your word processor

Whether you are in the medical, dental, auto, insurance, legal, travel (or any other) industry and ...

- have a need to keep any information about your customers
- want to keep in touch with them
- want professional presentations
- prefer to use your WordPerfect or MS-Word word processor

... MailExpress can be easily tailored to meet the unique customer contact requirements of any industry.

#### Free Customised Templates

And we will do it for you, FREE OF CHARGE, if you are the first one in your industry to contact us with your requirements.

You tell us what you need and we will build you a special customised template to use with MailExpress. That will enable you to keep track of your customers (or products), with everything you want to know ... name, address, birthday, colour of car, hairstyle, membership number, last contact, last purchase date and product ... whatever!

And you'll be able to have your word processor prepare mailmerges for you automatically, addressed to every person you select. Or list them in

reports. Or prepare lists of phone numbers for when you travel. Or ...

Customer contact is vital in these days of increased competition. You need to be able to keep in touch with customers to let them know about specials, new models, special promotions, sales or whatever else you derive your income from. If you don't your competitors will.

MailExpress is the way you can keep the edge. If you already have a word processor, it probably works with MailExpress. And it even makes your word processing easier.

Call now for more information about the best customer contact deal in town. This deal is a steal!

### Hawaii Holiday Winner

The lucky winner of our Hawaii Holiday promotion was Reverend Father Theodoros Filippopoulos of the Greek Orthodox Archdiocese in Albury.

Have a happy holiday Reverend Father. We hope you enjoy it.

## WordPerfect Corner ...

If you use WordPerfect, this column will be mandatory reading for you. It will keep you abreast of the latest products to help you with WordPerfect and the additional features you can get.

#### FREE Perfect Partners Catalogue

The Perfect Partners catalogue is available FREE of charge and describes a number of interesting add-ons you can get for WordPerfect. Give us a call and we will mail you a copy straight away.

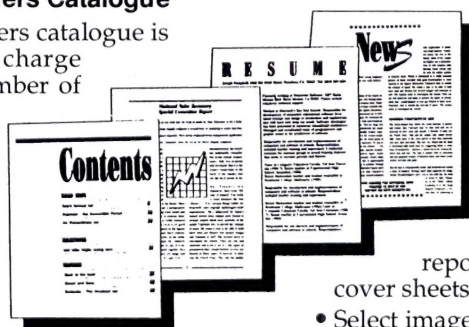
#### BY Design

Sometimes you have to shout to be noticed. By Design is the simplest and most effective desktop publishing system you will ever use ... right from within WordPerfect. It

combines over 600 graphic images with a detailed system for their application. Even novices can produce dazzling documents in minutes.

- Enhance text with Design Tools like lead characters, Borders, Headlines and Graphic Fonts
- Use Page Designs for stunning newsletters, reports, resumes, cover sheets, etc.
- Select images from the huge creative Clip Art gallery.

At only \$169, By Design is excellent value for anyone wanting to prepare really good looking documents with WordPerfect (DOS and WIN versions).



## SUPPORT

# Q&A

By Anthony Giles

Resident support guru, experienced in most manner of PCs and software.

### Printing From A LAN

**The Problem:** You've installed a LAN but find printing slow and performance in other areas sluggish during printing.

**The Solution:** Install a Printer Network to remove the extra load.

Most people assume that when they install a LAN, they will use it for all print spooling and printer sharing. However many are disappointed by the performance they get - but don't know what to do about it.

Using LANs for Printer Networks is slow and expensive. LAN software often requires a PC as a dedicated print server, a real waste of a PC. Many Peripheral Sharing Devices (PSDs) can be used to set up a Printer Network in conjunction with a LAN, at a fraction of the cost of a PC.

One limitation of using a LAN server for printing is the number of physical ports it has, thereby limiting the number of printers. A PSD lets one server port be used for 1... 10... even 20 or more printers!

Local and remote printers can be accessed by a workstation connected directly to a PSD, so all printing will avoid the server completely. Print jobs will take a fraction of the time to print and none of the server's resources will have to be allocated to printing. A PSD sheds the load from the server and removes the need to assign and maintain multiple print queues.

A PSD provides a more streamlined and productive solution if you need to share printers but don't require file sharing. Printer Networks can also provide many of the facilities of a LAN at a lower cost ... such as file transfer, email, chat, conferencing and sharing just about any output device.

PSDs can solve many connectivity problems. Please call for a chat if you have any situation where you think a PSD may save you time or money.



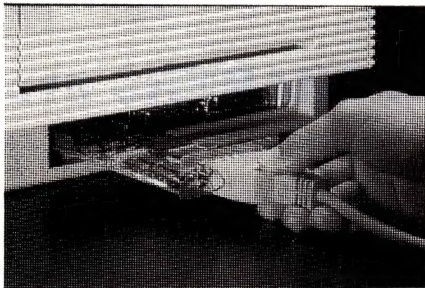
# New 1993 Product Releases

Here is a collection of some of the products you can expect to see coming onto the market as you read this.

Please give us a call on any products you find of interest and we'll be pleased to update you with the latest on their availability and price.

## doubleRES IV LaserJet II and III Upgrade for Faster Windows

doubleRES IV transforms an ordinary HP LaserJet II or III into a 600 dpi Windows printing system. The resolution is increased horizontally as well as vertically. With Windows, it will print faster at 600 dpi than the standard LaserJet at 300 dpi.



The doubleRES IV slips neatly into the LaserJet's option slot.

The doubleRES IV plugs into the LaserJet option I/O slot. No additional memory is required. It's fast and easy to install and supports TrueType and Adobe PostScript fonts. Brilliant for DTP and high-quality word processing.

## FAXimizer Workgroup Fax

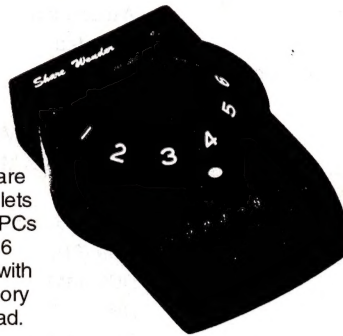
You already know that a high-quality fax can be sent more efficiently from your PC but giving this capability to everyone in your office can be costly. Each PC requires the installation of a fax modem and an individual phone line.

Not any more! FAXimizer is the new cost-effective way to put the power of PC faxing to work for you. FAXimizer comes complete with everything you need for 8 PCs to start sending and receiving faxes in minutes ... with only one phone line.

## Let Up To 36 PCs Share 6 Printers

The Share Wonder is a new advanced low-cost modular Printer LAN that lets up to 36 PC users enjoy the advantage of 6 printers or plotters at their fingertips simultaneously.

The Share Wonder lets up to 36 PCs share 6 printers with no memory overhead.



No software required. Install just one printer and one PC up to 1,200 feet apart. Add PCs and printers as you need them. Low cost. Very effective.

## Upgrade Your Printer to PostScript

Emulaser lets you print PostScript quality, professional-looking documents on just about any printer, no matter what software you're working with. And, whether you're using laser, inkjet or dot matrix, Emulaser gives you the power to scale type ... use large type when you need to make a big impression or take advantage of small type when you have a lot to say.



Emulaser lets you to print PostScript quality on laser, inkjet and dot matrix printers.

70 different typefaces and dozens of special effects included. Compatible with all Adobe Type 1 fonts. Brilliant graphics. Full colour support. Halftone graphics. Print spooling.

## Peer-to-Peer Networking for DOS, Windows & Netware Workgroups

WEB 3.0 provides a new standard in Windows, DOS and Netware connectivity. WEB lets you easily configure any Windows or DOS station as a server, peer or client, making it the perfect network platform for anyone considering migration from DOS to Windows or Netware.

WEB includes both a Windows and DOS interface, enabling a single station to run both interfaces and have full ac-

cess to network resources in both environments. Supports up to 900 nodes on a single network with up to 255 clients per server. It supports IPX and ODI, letting you choose virtually any interface card and topology you wish.

## Scan From Your Fax to Your PC

FAXscanner is the only device in the world that turns your fax machine into a full-page scanner. It's also the only fully portable scanner available today, being so small it fits into your pocket.



The incredible FAXscanner converts your fax into a full-page scanner.

This incredible device has now made full-page scanning available to everyone. FAXscanner generates PCX image files which can be used with all major desktop publishing and word processing software. From now on, scanning is as simple as sending a fax.

## Complete PC Security Software

Failsafe Computer Guardian guards all your valuable files and programs. Never again delete or change anything accidentally. Failsafe keeps out snoops, thieves and vandals and prevents virus attacks. All at the very low price of about \$99. The top in security.

Failsafe supports DOS, Windows and Networks in the one package.

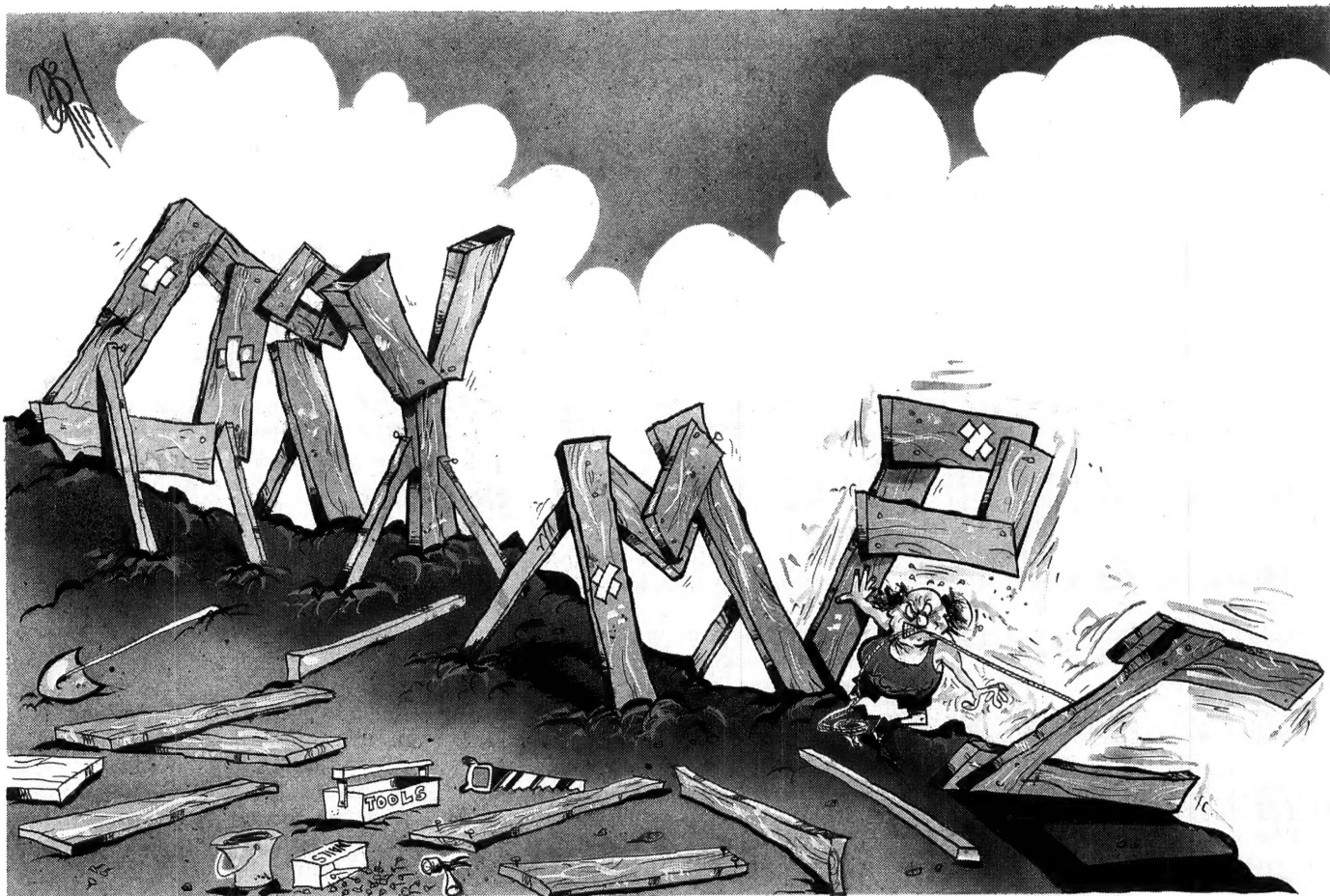


## Do you have a story?

You're reading this because you're looking for stories and news about PCs. Maybe something to help you set up your own system better?

Others are interested in *your* story too. Let us know what you're doing and how you're doing it. Humorous,





**'Do it yourself multimedia personal computing' — Roy Hill put his hand to setting up a system himself and found it's not quite as straightforward as we've been led to believe.**

**W**ITH ALL OF the current interest in multimedia PCs, I thought it a worthwhile exercise to investigate the possibilities of purchasing all of the components separately and putting together a system, rather than buying a purpose built multimedia computer. A council headed by Microsoft has defined a standard for multimedia systems and those PCs that meet the standard can display the MPC (multimedia personal computer) logo — after paying the council US\$250,000, that is. Note, though, that there are any number of products that meet and even exceed the standard and haven't paid the fee — these are often just as 'compatible' as those products which do display the logo.

Now, let's consider what is the bare minimum required to make a multimedia system that meets those standards. The system will comprise five components:

- ☐ An MPC-compatible CD-ROM drive;
- ☐ An MPC-compatible sound card;

- ☐ A high speed SuprVGA display card;
- ☐ The software to drive all of the above and the applications to use on these items;
- ☐ Some means of hearing the sound output.

You might argue that a high speed video card is not necessary, but my view is that the whole concept of using multimedia is to take advantage of mixed text, graphics and video. To handle all of this requires the fastest display method that is economically viable. One should also ensure that the items are MPC compatible. This means ascertaining that the CD-ROM has the correct data transfer rate (at least 150Kb/sec) and that the sound card has the appropriate Windows drivers. Basically, we want everything to work together in harmony.

I rang my friends at Microgram Computers at Bateau Bay NSW and asked if they could supply my shopping list for evaluation. They supplied all of the above components within two days. I also asked several other companies to provide me with

a similar bundle, so that I could compare performance, but I gave up in disgust after endless delays and procrastination.

The prices of the components supplied by Microgram were \$540 for the co-processor-based SuprVGA card, \$820 for the CD-ROM drive (Matsushita) and a CD caddy, and \$375 for a Sound Blaster Pro compatible card, totalling \$1735.

Being too Scottish to invest in a high quality (read 'price') stereo amplifier, I purchased a \$49.95 pair of active speakers (they contain their own primitive amplifying system) from my local Tandy store. They perform admirably.

Considering that there are bundles available which include a CD-ROM and sound card, for around \$800, buying the components separately obviously doesn't make good financial sense.

Each of the above came with driver software and Microgram also supplied a demo CD containing 2000 public domain programs. The kind people at Microsoft also sent me a copy of Microsoft Bookshelf to have a look at.

In order to obtain effective use from a multimedia system, one should have a minimum of a 386SX, although a full 'DX' would be preferable, a minimum of 5- or 6MB of RAM (8 is better) and a fast hard disk (14- to 19ms access time), with at least 20MB free.





**HOWARD  
KARTEN**

## The portable office

**A**NYONE CURRENTLY in the workplace in the States, and undoubtedly in Australia, is witnessing a profound shift in the nature of worklife. The current change in some eerie ways parallels the change two centuries ago from cottage industry to centralised workplace.

For years, we inky wretches have been writing about developments like telecommuting and the portability of work which technology affords. Finally, there is concrete evidence that these ideas are getting beyond being interesting curiosities and are actually coming into being.

In particular, 'the office' is becoming more and more a virtual or logical concept, as opposed to a physical concept. Few would dispute that the vehicle for this trend is the capabilities offered by technology. But as with all such trends, technological possibilities alone are not sufficient, and the motivator — the spark, so to speak — is economics, especially the worldwide recession of the past two years or so.

'The office' really is 'the work which is done in an office', and in an information age, that work is . . . processing information! When work involved making 'real' things like ingots, you worked by going out to the steel works. Today's blast furnace is a powerful desktop computer, and fibre optics lines (or rooftop satellite dishes) are literally the supply and distribution lines which take the place of railroad tracks.

Classically, office space has been located in the heart of the city, making it expensive to start with, and wasteful if unused. Some accounting firms have begun to think of their office space as 'hotel rooms', to be assigned to 'guests', for example, auditors working at headquarters, instead of assigning the space permanently to one individual. Auditors are supposed to be out working at client sites, the thinking goes, not sitting in their offices. So when an auditor is going to be working at his company's 'headquarters site', he phones ahead and reserves an office. His personal items (such as calendar and pictures) are then brought out of storage and placed in that office. This idea would be difficult, if not impossible, if most data still existed in filing cabinets and not on hard disks.

Inevitably, bandwidth and computing capacity will increase, making the 'virtual office' even more feasible and affordable. I know of several small companies which are already 'virtual' companies, relying on fax, v-mail, and e-mail (and sometimes, overnight courier) to coordinate activities and move work products around.

That's on the technology side — the dream, so to speak. The catalyst which will turn these dreams into reality is that most old-fashioned of substances, *money*. Companies attempting to squeeze their budgets more will surely make more use of 'satellite offices', less expensive space in the suburbs, linked electronically to the databases at headquarter sites.

Now, there really are some attractive aspects to the virtual office, unless you work purely for the camaraderie of your mates. Show me a person who likes commuting and I'll show you a masochist. Is there a person anywhere who works in front of a computer screen who has not thought about telecommuting?

Despite all the changes in technology, however, some fundamental aspects of human beings have not changed, and there will still be status and prestige attached to being 'at headquarters', which after all 'controls' and 'directs' things, which after all is a prestigious assignment. That's just the way people are.

There is some research showing that feelings and personal contact is often the dimension on which subordinates are evaluated. This is because some kinds of work are difficult to measure and evaluate — for example, the work done by managers often falls into this area. Thus, some studies have concluded that the interpersonal skills of managers contribute as much to the ratings they get from superiors, if not more than, their actual results. People are always measured on *some* dimension, and if it's not output — results achieved, dollars spent to get those results — then it will be likeability ratings.

A phenomenon which sheds some light

on the political aspects of work is turnover in the bureaus of media organisations. There appears to be less turnover among outlying bureaus — 'branch offices', so to speak — than among folks at a publication's main office. I suspect this situation probably occurs as well among the branch offices of other businesses. In diplomacy, for a long time, there was a very curious situation with the Soviet Union. Given (a) the nature of politics in the Soviet Union, (b) the critical importance of personal loyalty, and (c) the importance of the US and UN ambassadorships, it would be reasonable to have expected each new Soviet leader to appoint his own people to those posts. Yet

both ambassadors served in their posts for quite a long time, despite all the changes which occurred in the Soviet leadership.

The implications seem clear to me: overlook the political aspects of 'the office' at your peril. For telecommuters, 'out of sight' may well mean 'out of mind'. In other words, the water cooler or the coffee machine are often overlooked, but nevertheless important, pieces of office technology. Many telecommuters have realised this, at least implicitly, and a common arrangement has been to avoid the 'out of sight' trap by telecommuting only a few days a week.

In concrete terms, I think this means that the changes we've seen recently in American worklife will inevitably spread to other countries. The changes we've seen so far in the 'States' — widespread layoffs, longer work hours, increased stress because of increased uncertainty over future employment — will produce still more change in the workplace culture, the way work is done. I suspect that the changes to come will bring about the 'information age revolution' which seers have been predicting for years. (If you predict something long enough, and it's plausible, it's only a matter of time before it comes true.)

We'll manage to cope with these changes just as long as we don't regress all the way back to cottage industry. □

**Show me a  
person  
who likes  
commuting  
and I'll  
show you a  
masochist.**





**BILL  
OLSON**

# Customs computes

**N**EXT TO THE home of the Canberra Raiders at Bruce stadium lies the brand new computer building for the Australian Customs Service — it's adjacent to the nearly completed bunkers for the Australian Tax Office computers. Security to both these complexes is naturally bordering on the paranoid. Most government departments operate in military mode with computers, where they protect the physical equipment more than worry about the possibility of someone modem-ing their way into the system.

Nevertheless the Customs computers will speed up the processing of visitors in and out of the country with better security on undesirables getting in. Some wag once commented that there were quite a few undesirables here already, particularly in Canberra. The other area that Customs works on is clearing imported goods after duty is paid. This new complex will handle these transactions with a sophisticated EFTPOS system allowing customs agents to pay electronically.

The new building is designed to handle Customs traffic growth for the next 20 years. Apart from the well known capital city ports around Australia, Customs actually deals on-line with 21 official entry and exit ports. This year the Customs computers will begin managing quarantine functions as well.

The centre was officially opened recently by the responsible minister, David Beddall.

## Conversation database

EASY TO USE computer mapping and search facilities on the Environmental Resources Information Network (ERIN) can now show the precise whereabouts of our nature conservation reserves. ERIN uses commercial software running on Unix workstations to give network access to map data. This includes line drawings, raster or satellite images and polygon map graphics.

Using the software it is possible to probe the database for geographical areas of Australia. So the system can be interrogated to find out about rare or nearly extinct species in one region of the country. Because ERIN is essentially a network the

data does not all come from the same computer.

Among the organisations connected to ERIN are: the Australian Heritage Commission; the Environment Protection Authority; the National Botanic Gardens; the National Parks and Wildlife Service; the Bureau of Meteorology; and the Antarctica divisions and the CSIRO. The database is split into a number of sections and, up front, on the network is a catalogue and dictionary. This provides information about ERIN's data. By using the dictionary you can check the data source, background, quality, access restrictions and accuracy.

The Taxon (for 'taxonomy') information section contains scientific and common names for flora and fauna plus any recent changes. This is where you can find the latest details about any species, its conservation status and regional occurrence. The management information section contains region by region details about projects in progress. Included is amounts of money spent, names of people involved and their

special fields. In the specimen section are the records of over 800,000 specimens collected by Australian museums.

Some sections of the database are still being worked on. One is called site survey. When finished this will have up to date observations of flora and fauna including when and where the sightings occurred. (Perhaps ERIN will locate that elusive Tasmanian Tiger.) Another new section will store references to publications such as environmental impact studies.

The Landcover project is already part of the ERIN network. This collates data about landcovers such as gum trees and types of grass. ERIN checks on the Landcover data already collected because many details about particular names of trees and their location have been inaccurate. The project has revealed information gaps, turning up some areas of Australia about which little is known.

While satellites have been used for spying and communications for decades, one of their most important uses is often over-



*David Beddall officially opens the new computer building for the Australian Customs Service.*



looked. ERIN has been collecting data from satellites over two week cycles at a one kilometre ground resolution. From this, it will calculate the density of active green plant cover for each square kilometre. Once this data is complete climatic changes will be much easier to follow.

Another use for the satellite is spotting large bushfires and also monitoring floods. Growers of illegal substances should watch out because ERIN can use the satellite at finer resolutions than one kilometre checking plant types through infra-red scanning.

ERIN can tell you how many Australian plants are on the danger list — currently, 40,000 types of plants are listed as being in serious trouble. Records of Australian plants from past centuries are giving researchers some idea of how the continent has changed since settlement. Apart from endangered plants you can also check on rare or little known types through ERIN.

Boundaries drawn on maps may need to be redrawn following some of the spatial data from the satellite. For example land parcels with rivers as part boundaries do not always coincide when compared with the latest satellite pictures.

ERIN is accessible through AARnet, the Australian Academic Research Network.

### Network management

SOME NEWER wide area networking (WAN) technologies are about to make life better for government network managers and users. These new links for WANs are Switched Multimegabit Data Service (SMDS) and Asynchronous Transfer Mode (ATM). While each system gives the same basic result they each approach the task differently.

Another existing, yet not fully developed system is Frame Relay. As a 'child' of X.25, it operates at up to two megabits per second with frame sequencing to send data, voice and other digital information together. In an effort to speed up the data transfer, Frame Relay does not do error correction on the fly. Instead the checking happens between the sending terminal and the network switch.

Frame Relay has proved to work best over long distances using dedicated lines. While Frame relay has been around since 1987, it is not such a popular system in our region.

ATM is much newer than Frame Relay with speedier transfer rates ranging from 155 megabits to more than 1 gigabyte per

second. It can handle data, images, video and voice. This technology is gathering support in the US and England, mainly because of its speed and also the ease with which it sends any type of information over a network.

Some present users of Frame Relay are seriously looking at ATM as their next technology. IBM has said that ATM will be incorporated in future fast packet switching technologies. Cray Communications (the super-computer company) in the US recently announced a range of Frame Relay products. These included data encryption and fast packet switching.

So Frame Relay still has plenty of support.

Well known networking companies such as Cisco Systems have announced a three stage plan for placing full ATM support into networks within two years. The company has already completed an SMDS project describing it as the forerunner to ATM. Other companies serious about ATM include DEC and Cabletron. DEC claims it will have ATM interface cards for existing networks by 1994.

While many companies appear serious about ATM as the network technology for 1995 and beyond, there is still a problem with high costs. At present an ATM workstation adapter card is around US\$4000 with prices unlikely to fall over the next few years.

Other lower cost alternatives to ATM have more chance of acceptance in the meantime. For example the Fibre Distributed Data interface (FDDI) has strong support from Silicon Graphics and others. While networking companies may see advantages in ATM or other new systems, users with big investments in existing networks such as government departments in health and social security, want products that can be added on instead of scrapping the network and starting again.

Supporters of Frame Relay, ATM and SMDS have been criticised for not getting together on developing the best method for speeding up data transfer.

Meanwhile Silicon Graphics has announced two new network software programs, NetVisualiser 2.0 and Iris Impressario. Both are claimed to improve performance over networks. Netvisualiser is a graphic monitoring and diagnostic system while Iris Impressario is said to speed up printers for workgroups. Netvisualiser will also run on Sun Sparcstations. ☐

**Some present users of Frame Relay are seriously looking at ATM as their next technology.**

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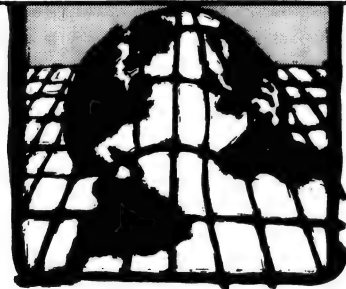
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# INDUSTRY UPDATES



## Digital video computing

BILL GATES OF Microsoft and Andrew Grove of Intel have simultaneously announced the two companies' shared vision for digital video computing, the next wave in personal computing. Microsoft announced Video for Windows, while Intel announced its Indeo technology, which is incorporated into Video for Windows. Together they allow users to integrate digital video information in applications that run on the Microsoft Windows operating system.

While digital video has been available on personal computers for some time, it has generally required add-in cards which typically had the dual disadvantage of high price and possible incompatibilities. Video for Windows overcomes these difficulties by making digital video available on any Windows-based microcomputer with a 386 or better processor, with or without additional hardware.

The two companies, working together, have delivered 'scalable video'. This automatically adjusts the quality of the video depending on the performance and configuration of the computer being used. An image played back on a 386 will be viewed at a rate of 15 frames per second (fps) on a tenth of a screen. Using the higher performance of a 486 system the same image would be displayed at a rate of 24fps on a quarter of the screen. If an accelerator card with the Intel i750 video processor is added to the system, the image will be displayed full-screen and full motion at 30fps.

Indeo technology includes the capability for real-time, single-step video capture and compression with immediate play-back, when the user adds a video camera and add-in card based on the i750. Compression is necessary because raw video data uses enormous disk storage, and Indeo allows instant compression while recording. This eliminates cumbersome off-line compression and the expense for additional storage capacity.

Microsoft Video for Windows contains tools for playing back, editing and creating compressed digital video. Video for Windows can be used to play back video on all implementations of Windows 3.1, including Windows NT on workstations. Specific components of Video for Windows include an enhanced Media Player that allows users to cut, paste and play back digital video sequences under Windows, VidEdit, a versatile and easy to use video editor, VidCap, to capture digital video from analogue sources like cameras and VCRs, compression and decompression algorithms, a CD-ROM disk with hundreds of sample video clips, and finally the Video for Windows converter that converts QuickTime video for play-back in the Windows environment.

Video for Windows takes advantage of key elements of Windows, including object linking and embedding (OLE), meaning that over 150 applications already on the market from Microsoft, WordPerfect, Lotus and other publishers automatically inherit digital video capabilities. It introduces a common file format for video information, called Audio Visual Interleaved, an installable Codec (compression/decompression) interface, and a Video Capture Interface.

Intel's software technology is embedded in Video for Windows. It can provide either software-only or hardware-accelerated digital video. By adding a video camera and an add-in board using Intel's video

processing chips, Indeo technology also allows users to record video on a PC in one simple step.

Claude Leglise, Intel's Multimedia and Supercomputing Components Group marketing director, said that 'We anticipate that Indeo video technology will be the catalyst that will bring digital video computing to millions of personal computer users. We believe it will become the most widely used video compression/decompression software because it will enable

video data to be shared across the installed base of personal computers and major operating systems.'

Gates said that 'The benefits of digital video computing are tremendous. Video is a powerful communications tool for a range of applications, such as business presentations, employee training and electronic mail. With Video for Windows we've made the benefits of digital video available to millions of customers using Windows.'

*John Hepworth* ☐

## Parents a good market

WITH ALL THE TALK ABOUT education and the family, it should not come as a surprise that a new study says people who are parents are the most likely to be interested in home computers and software products. The US-based interactive on-line Prodigy service says computer and software manufacturers should look at parents as a strong possible market for their products.

The Roper Organization, in a presentation organised by Prodigy, said parents are twice as likely to be interested in computerised information services than non-parents. The Roper study found 45 per cent of US households with personal computers have children under 18, and 43 per cent of parents are interested in computerised information services, compared to 25 per cent of non-parents.

W. Bradford Fay, research director of Roper Reports said in a prepared statement: 'Most people assume it's the techies who buy home computers and software, but the bulk of purchasers are now families with children.'

Specifically, parents are looking for reference materials such as encyclopaedias, learning aids, how-to books, news, and travel guides, Roper said. Parents are also more aware of the technology, the study said with 60 per cent of parents aware of laser disks compared to 48 per cent of non-parents. Parents were also more aware of laptop computers, high-definition television, CD-ROM and interactive TV, the study said.

Education ranked highest as the activity parents said they would carry out on their personal computer, (58 per cent) with games (55 per cent), personal record keeping (55 per cent), and household bookkeeping (52 per cent) following, Roper added. ☐

## Help for pen-based computing

LOGITECH AND Chips and Technologies (C&T) say they believe they can help the pen-based computing market get off the ground with the design of a 9 by 12cm pen-based computer that only needs two AA batteries and can be marketed for less than US\$500.

The design kit for the new

pen-based computer is being provided free by C&T and Logitech in the hopes original equipment manufacturers will pick up on the idea. The kit includes technical specifications with the complete design, all the supporting documentation, and references for software houses, C&T said.

The design is a single-board design with a display of 256 by 320 pixels. The two AA batteries are expected to provide more



than 10 hours of battery life. Storage capacity can be provided by credit card sized PCMCIA solid state memory storage and the unit is also designed to support IDE drives.

The design features a basic input/output system (BIOS) from C&T and Phoenix Technologies, and Gazelle Graphics, a Logitech affiliate, has designed and developed an integrated digitiser and central processing unit board in a light 'ultra-thin' form factor. Grid Systems, GeoWorks, Communication Intelligence, and Phoenix are all offering to provide software for the unit. □

## Multimedia market to quintuple

ACCORDING TO a study released by Market Intelligence, multimedia hardware and software sales worldwide will nearly quintuple over the next six years. The study also claims that prices will drop and potential users will better understand the new technology's possibilities.

The study also estimates that the market will increase from US\$5 billion in 1992 to more than US\$24 billion by 1998, which represents a 25 per cent compound annual growth rate. Growth is also anticipated to accelerate in the mid-1990s, peaking at over 40 per cent during the 1993-95 period before flattening late in the decade.

According to the report, called: 'World Multimedia Hardware and Software Markets', video products will expand from four per cent of the total market in 1992 to more than 20 per cent of a much larger market by 1999, while authoring software grows from a six per cent to 11 per cent share in the same period. Audio products are projected to peak in share at over 18 per cent of revenues by 1994. Computer platforms, which now make up nearly three-fourths of the total world multimedia market, will correspondingly drop in share to 58

per cent by the end of the 1990s.

According to the report, multimedia currently finds its primary uses in corporate training, education, and entertainment, with North America its predominant regional market.

The report also anticipates that multimedia will gain acceptance from low-end users later in the decade with interactive software applications such as 'shrink-wrapped' interactive books, games, and lessons becoming 'high-volume items'.

Interactive video is expected to emerge on public networks during the next decade. Multimedia will also become part of normal application file such as spreadsheets and electronic mail. The ability to send voice and video over local and wide area networks is also expected to increase.

The report predicts that future multimedia machines will feature advanced data compression for high-quality video, faster CPUs, and cheaper and larger mass storage. □

## PSA findings criticised

THE FINDINGS OF the Prices Surveillance Authority (PSA) about the Australian software market have been attacked by the computer software industry. The industry has specifically targeted the PSA's recommendation to remove import restrictions, a move it says will cause irreparable damage to the market, which the vendors claim is already high in competition and low in profits.

The PSA has released its draft report on the industry, and the Australian Information Industries Association (AIIA) attacked various facets of the report. The AIIA has claimed it has been given insufficient time to reply to the report, and also criticised the methodology used to prepare it. The AIIA has claimed that the burden of proof normally associated with due process had

been reversed, and that this represented an unsound basis for government decision-making.

The report recommended lifting of import restrictions to allow parallel importing, which it said would lower the prices of software, which is on average 49 per cent higher than in the US.

AIIA acting executive director, Rob Durie, said at a public hearing in Melbourne, 'This recommendation has the po-

tential to undermine the basic property rights that are central to the development of the information industry in Australia.' Durie claimed that when the different market sizes were taken into account, Australians were only paying 29 per cent more than their US counterparts. 'The evidence presented to the inquiry shows clearly that Australian software prices are the lowest of any legitimate market outside North America,' Durie said. □

## Shift to 'communications-centric'

JIM MANZI, PRESIDENT AND chief executive officer of Lotus Development, set the theme of the Canadian Computer Show and Conference in the opening keynote address, talking about a shift from a data-centric to a communications-centric view of computing. It was not a new theme for Manzi, who said many of the same things at his company's 10th annual meeting six months ago. One element new since that speech was the promise that the next release of Lotus' 1-2-3 for Windows spreadsheet software will incorporate Lotus' 'group-enabling' Chronicle technology.

Chronicle will enable data sharing at a level below that of distributing files, Manzi said, allowing users to share single cells or groups of cells across networks. The same technology will be incorporated into Lotus's Ami Pro word processing software for Windows later on, Manzi added.

Manzi referred to the 1980s as a 'decade of disintegration' in which traditional business and organisational models and even the traditional office started to come apart. He said the 1990s must be a decade of 're-integration or else'. Networking will be the key ingredient in that, Manzi said, and he used that starting point to pitch his company's Notes workgroup software.

Manzi cited a study undertaken by a research firm under contract to Lotus, which he said found Notes produced an average return on investment of 400 per cent, and did so in less than four months on average.

He also did not miss the chance for a dig at rival Microsoft, which recently introduced its own workgroup software product. In response to a question from the audience, Manzi said Microsoft's Windows for Workgroups is 'a placeholder in this space, but it is nothing in function of capability compared to Notes'. □

## Transputer network research

A SENIOR LECTURER in computing studies at Charles Sturt University has announced research which could see work

currently being carried out on supercomputers being done by much cheaper, but just as powerful, transputer networks. Dr Wayne Moore has been working with a team to develop the idea, and has received interest from some international research bodies.

*'Industry Updates' is provided by Newsbytes, the world's largest independent network of computer journalists.*



Moore has been researching parallel computing and transputers, and says that the field could represent a tremendous opportunity for local companies to compete with large international firms for research computing facility contracts.

'There is no reason why Australia can't compete with the big companies like Fujitsu and IBM in developing Australian-made transputer systems for our own industry,' Moore said. The researcher does, however, see one problem. 'We're up against... the mindset of using large expensive equipment in Australia, especially for research,' he said. Moore is confident of the power of using transputers and parallel computing. 'In effect we're saving

millions of dollars. A super-computer can cost between \$4 million and \$20 million and up, whereas a \$100,000 transputer network can do the same work,' Moore said.

After Moore's research group was represented at a recent international conference in Barcelona, expressions of interest and support came from the European Industry Research Center in Munich and the Rutherford Appleton Laboratories in the UK. The group is currently investigating developing the transputer network for use in GIS (geographic information systems) for the Land Information Center (a member of the research group), as well as developing a transputer for production lines. □

## Smallest colour printer

MITSUBISHI ELECTRIC HAS developed a small, low-cost colour printer for personal computers which is about a sixth of the size of existing colour printers. The firm claims that it is the smallest full-colour printer in the world. The printer measures 34.2 by 22.5 by 11.1cm high. It occupies the same space as a notebook-type personal computer on a desk. The printer supports various sizes of paper including A4 size, B5 size and postcard size. Also, this printer will print colour images on regular copier paper due to an advanced ink-sheet system developed by Mitsubishi. This means the cost of printing is less than that of current systems.

The colour printer is still a prototype, but Mitsubishi expects to sell it commercially within a year. The retail list price will be around 300,000 yen (\$3,500), which is less than half that of existing counterparts.

Mitsubishi has reduced the size of the printer by miniaturising the motor and other mechanical parts. Mitsubishi claims the print quality is excellent. □

## Intel may license Indeo

INTEL IS EXPECTED TO LICENSE its video computing technology called 'Indeo' to Japanese electronics makers. It is expected that Intel's multimedia software technology manager will shortly visit Japan to talk personally with executives of Japanese firms.

Nikkan Kogyo newspaper reports that Intel's manager of the multimedia software technology visited Japan in early January for talks. Intel hasn't said just which firms are involved in the licensing but has hinted that entertainment firms and personal computer firms are among them. Speculation has it that this means Sega Enterprises, Fujitsu and NEC.

Intel's multimedia software manager suggested that Intel may apply Indeo technology to ISDNs (integrated services digital networks) wherein it may be applied for applications such as video conferencing. □

## Legal CDs

THE MELBOURNE offices of law firm Mallesons Stephen Jacques (MSJ) has announced its adoption of CD-ROM technology for accessing legal information. The use of the database by the firm will see it placed as one of the few law firms in the country to utilise information technology to access legislation, documents, research and cases.

The firm will receive regular updates to the information from Diskrom Australia. According to the company, the agreement with Diskrom will see the 250 staff in the Melbourne office able to quickly and efficiently access information previously sought from printed volumes. 'It is much more efficient than turning to the bookshelves,' said Melbourne office managing partner Frank O'Brien. 'Lawyers are showing an increasing willingness to use a powerful and easy-to-use technology which greatly reduces the time spent searching for information,' he said.

MSJ also plans to extend the use of the technology throughout its offices in Australia. 'Our eventual aim is that every lawyer in the firm, nationally, has direct access to an extensive research base through the computer network,' O'Brien said.

According to MSJ library services manager Yvonne Butler, who oversaw the installation of the CD-ROM system, the electronic database allows a typical search to be carried out within 30 minutes. □

## Voice-input word processor

MITSUBISHI Electric says it has developed a powerful system that recognises human speech. The software is a word processor that accepts voice input. Although still a prototype, the system is said to understand natural human speech, making it a major step in the develop-

ment of a voice-input Japanese word processor.

Mitsubishi's human new word processor is said to be able to recognise human speech rapidly and accurately. Its kana-kanji conversion rate is claimed to be 90 per cent correct. The technology analyses both words and sentence patterns.

The voice recognition system is also unique and called by Mitsubishi the 'Convertible Length N Gram Model'. The linear voice element sentence model, as it's also called, provides a voice recognition rate of nearly 95 per cent, and enables the computer to recognise the speech of any human speaker without the need to register a voice prior to usage.

Mitsubishi will further improve the system to raise the recognition rate to close to 100 per cent. The technology is expected to appear on Mitsubishi workstations or in word processing packages eventually. □

## Virtual sports

VIRTUAL REALITY has announced an agreement with Lawrence Taylor's All Pro Sports Products to create virtual reality sports and entertainment games. Former National Football League linebacker Lawrence Taylor will be involved in designing the games, which Nelson Merritt, chief executive of Virtual Reality, said will likely begin with a football game to be released in the third quarter of 1993.

Merritt said the games will use a three-dimensional display technology meant to be more realistic than an ordinary television or computer screen, but will be played with a control unit similar to those used for today's video games, such as the Nintendo GameBoy units.

The game will probably cost up to 50 per cent more than conventional video games, he said.

Virtual Reality hopes to have a prototype of its first game completed during the first



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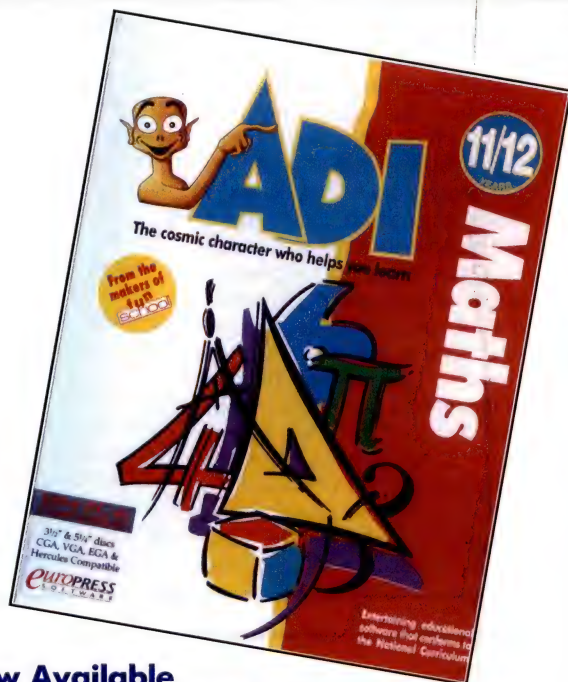
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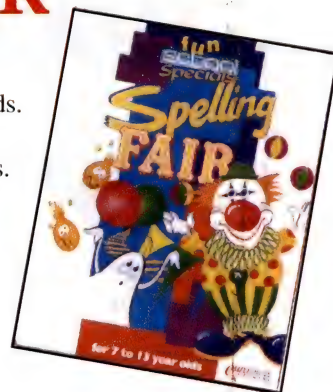
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quarter of 1993, and then to complete the final details by the third quarter when commercial release is planned, Merritt said. The design of the first game is under way now, he said. □

## Antivirus PC

IBM IS PLANNING to announce antivirus PCs based on new hardware technology introduced by Western Digital. Implemented on its ISA WD7855 single-chip controller, Western Digital says its hardware-based antivirus technology is preventative virus medicine. Western Digital says embedded Immunizer system control logic is invoked through System Management Interrupts (SMI) and it monitors write operations to the hard disk for suspicious activity via the WD7855. Immunizer write-protects all areas of the hard disk drive containing executable files, the

## Backward industry?

WHAT IS IT WITH THE computer industry? Half the time we're inundated in the press with 'leading-edge' technology that will not be available to the public for years, and yet much of the time users have to deal with 'backward' vendors and publishers. What is it with sending software on 5.25-inch PC disks! Haven't these people heard of the 3.5-inch floppy?

None of the PCs I have in my home office have 5.25-inch floppy drives. How stupid of me. I thought it was a technology happily deemed for the scrap-heap years ago.

Why not buy a 5.25-inch drive? Why should I? My favourite PC is still my 386SX-based Olivetti PCS 386SX. It has the best keyboard I've ever used. It was purchased 18 months ago *without* a 5.25-inch drive. There is no room for an internal 5.25-inch floppy drive. Do you know how much an external 5.25-inch drive would cost? Too much. That's how much. And why should I? Just so publishers can save a few cents by shipping 5.25- instead of 3.5-inch floppies.

I've been working on a review of Eagle Technology's NetWare Lite Starter Kit. The kit includes two networking boards, cables, connectors, and two copies of NetWare Lite 1.1

— the software came on 5.25-inch floppies!

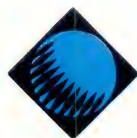
I've got a PostScript-compatible laser printer to review and the accompanying printer utilities came on a 5.25-inch floppy.

Ninety per cent of the computer books out there that come with a floppy disk containing files are in the 5.25-inch format. It often costs extra to get the 3.5-inch version, if offered at all.

My wife bought me the Wing Commander game a year or so back. The game disk came in 5.25-inch format. No problem I told her. We'll just go back to the store and swap it for the 3.5-inch version. But the store didn't stock it in 3.5-inch. What's more, virtually all of their games were 5.25-inch disks only. The result? We got our money back. I never did get the Wing Commander game.

My question is this. Why should you have to specify you need 3.5-inch disks when you get a product? 3.5-inch format is the industry standard. 5.25-inch is outdated and would become obsolete pretty quickly if vendors and publishers would only let it. The least publishers could do is ask you which disk format you use. Or better yet, include *both* versions in with their product at no extra charge. (Ian Stokell)

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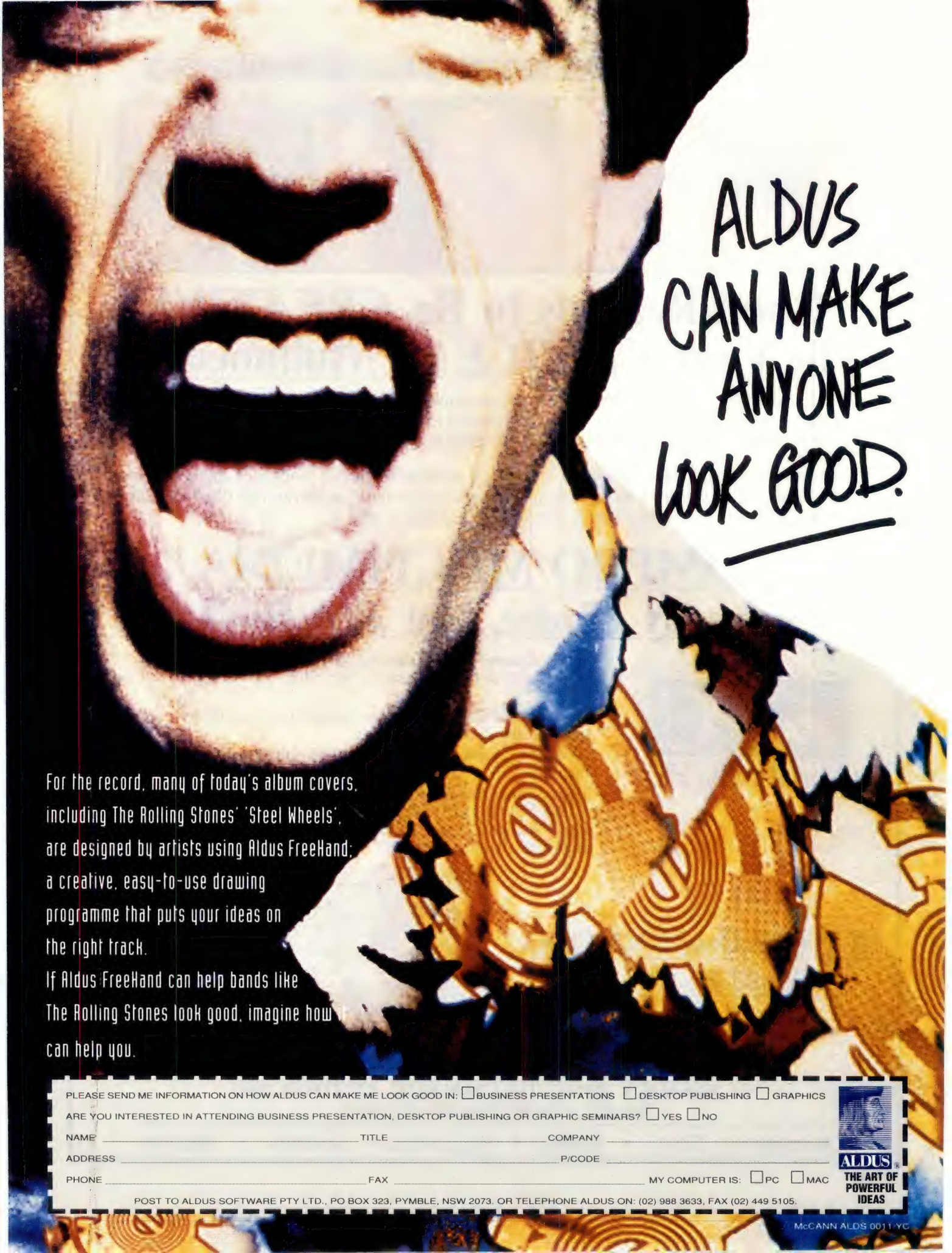
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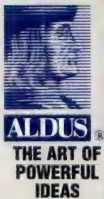
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types of files to which viruses attach themselves to get control of the central processing unit (CPU) and perform their dirty work. Company representatives also told Newsbytes the Immunizer also protects the hard disk boot sector, which is especially significant as IBM has released statistics revealing the vast majority of viruses found 'in the wild' are boot sector viruses.

Western Digital is billing the WD7855 controller as preventative medicine that can stop virus infection, not just detect it afterwards. The company says the controller can detect both known and unknown viruses and has no noticeable effect on

system operations or performance. The company says the WD7855 can be implemented with conventional software-based antivirus products to provide protection against the growing epidemic of existing, new, and mutating viruses.

The technology is planned for all the company's future system controllers.

This is the second hardware-based virus protection technology announcement for implementation in PCs. Advanced Micro Devices (AMD) disclosed this summer its PC-based basic input/output system (BIOS) which offers boot sector write-protection against virus infiltration. □

## What's a 'hand-held'?

THE MARKET FOR HAND-HELD computing devices such as Apple's Newton will arrive next year with the introduction of several products, according to participants at the Personal Computer Outlook conference held last December. Called everything from personal digital assistants (PDA) to hand-held computers to consumer computing devices, the products will take advantage of enabling technologies such as pen input, cellular, and new operating systems to provide customers with a wide variety of delivery systems for mobile data.

Participants at the conference emphasise the segmented nature of the hand-held market. Pensoft chairman, president, and chief executive officer, John Zeisler, sees a market divided into desktop productivity applications based on notebook computers, information/organisation/communication devices such as Newton, based on RISC technology, and application-specific devices to serve a sub-\$500 consumer market.

'We have a propensity in this industry to look for a monolithic answer,' said Slate chairman and chief executive officer, Vern Raburn, in agreeing with the need to look at the market more broadly. 'We look at mobile computing as only a communications market, but it's not.'

Companies are using a number of different strategies to develop products for the emerging market. John Sculley of Apple said his company will develop the individual applications itself. 'In PDAs, we do not see a market for independent software vendors,' he said.

That comment drew scorn from Microsoft's Bill Gates. 'Do hand-held devices need to be untied from the existing platform?' he asked. Gates said that with Modular Windows, Microsoft can now provide a scalable operating system that spans hand-held to servers. The stripped down version of Windows fits into 1- to 2MB of ROM, allowing for smaller devices.

Conference participants disagreed on when consumer devices would emerge. Sculley said that the Newton announcement had been misconstrued by the press as redirecting Apple to the consumer market. 'Consumer interest will come once price points come down,' he said.

Tandy, Casio, GeoWorks and start-up Palm Computing, however, believe the time is now and are working to introduce consumer market devices in 1993. 'Our device will be available next

year and be closer to \$500 than \$1000,' said Tandy vice president for corporate computer marketing, Howard Elias.

Besides price, battery life is a major concern in the consumer market. 'We have to think of battery life in terms of months, not hours,' said Palm Computing president Donna Dubinsky. The compact code of GeoWorks' GEOS environment allows the group to use less power-hungry 8088 devices, she said.

'The size of the operating system is driving [hardware] architectural decisions,' noted Michael Slater, editor of the US-based *Microprocessor Report*. 'For under US\$500 systems, you have to go with an 8088-class processor. For under US\$1000, you can go with a 386SX.' □

## Buyers' remorse

IN A SURVEY released by US company Channel Marketing, one thousand IBM and compatible PC owners talk about what they would do differently if purchasing their computer again, including things they had to change later.

Of the top five things on the 'I wish I had gotten ...' list, number one was more expansion capability. Too few internal expansion slots and external drive bays was the biggest complaint with 62 per cent of the respondents. Users discovered the limitation when attempting to add one or several components.

Forty-eight per cent of the respondents wish they had gotten a better quality monitor.

The next complaint was a need for more memory among 47 per cent of users, especially those using Windows. Channel Marketing said many of the users purchased systems with Windows preconfigured on the system, but with only 2MB of RAM. With so little RAM, they had difficulty, or simply could not run the applications desired or found they needed 4MB of RAM to run two applications at a time.

Even more disappointing was the fact that some users had to purchase all new RAM, as the additional RAM could not be used in conjunction with the RAM they already had. That's because many PCs are equipped with SIMMs (single inline memory modules) which come in varying capacities that do not mix.

Thirty-nine per cent of those

surveyed said they should have gotten a bigger hard disk drive. Windows takes up five to eight megabytes, and Channel Marketing said one gentleman in particular had a Star Trek game which took up seven megabytes of hard disk space. Many of the Windows applications, such as WordPerfect for Windows or Microsoft Word for Windows will take between 6- and 10MB of hard disk space each.

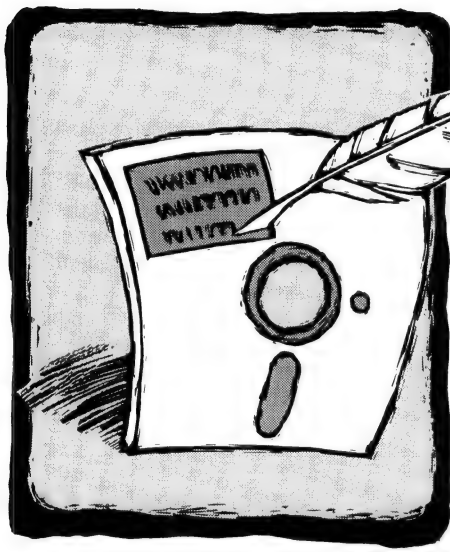
Users said most systems came with either 3.5-inch or 5.25-inch, and whichever drive the user had, 36 per cent said they wish they had the other drive as well.

The overwhelming majority of users said they could have avoided these problems had they more seriously considered the applications they were going to use the computer for. Many users said they were trying to avoid additional expense at the time of purchase. Channel Marketing reported many users who said they had attempted to upgrade the computer they bought and discovered they were unable to do so.

Of the users who responded, almost all said they would have saved a significant amount of money had they simply bought a PC with the options they needed instead of upgrading later.

Channel Marketing said users should consider not only what they want to do now with the computer, but what they'll want to do for the next couple of years. In addition, buyers should find out exactly what is involved in upgrading the PC of interest. □





# WRITE BYTES

## YOUR COMPUTER READERS' FORUM

*enormous expanse of expertise as a convenient way of maintaining the appearance of great knowledge.*

*Home Medical Advisor is a computer program. The fundamental difference is that whilst it can diagnose quite successfully by using its immense database (there is a reason for them being called 'expert systems'), it is still no more than an extensive, computerised, medical encyclopaedia. Humans, it seems, will remain the sole medical authorities for much of the foreseeable future.*

### Home Medical Advisor

As a practicing 'local medico' I am offended by the tone adopted by Stephen O'Brien in his review of Home Medical Advisor [December '92]. The initial paragraph is downright insulting in implying that doctors do no provide value for money. I also believe that something more than a personal opinion from the local distributor, concerning patients' acceptance of the use of this program during a consultation, would be in order if a realistic review of the program is being performed.

This review is not in accord with the previous high standard of articles and reviews submitted by Stephen O'Brien.

The last paragraph advising 'Hypochondriacs best not apply' is the only gem in the review as it highlights the dangers inherent in 'diagnosis' by the untrained, even with the aid of what *may* be a good program.

#### **Name supplied**

*Stephen O'Brien replies: The initial paragraph of my review suggested, albeit humorously (and isn't laughter the best medicine?), that a visit to the 'local medico' often causes more pain to the wallet than does the reason for going cause to one's self. You staunchly disagree with this but, in the interests of maintaining a sense of proportion, you are a doctor, and you earn a doctor's wages. If, however, you feel that the pricing policy of the AMA is open for discussion, by all means feel free to work free.*

*Secondly, nearly 200 copies of the HMA have been sold in this country as of early December '92. A number of these were bought by members of the medical profession. If they are not, indeed, using these in the consultation room, then one can only presume they are being used at home as a reference tool and an informal and useful refresher course.*

*Is it wise to improve one's self with such a product? The program was written by some 40 medical specialists. I would humbly suggest that you consider easy access to such an*

### GeoWorks is neat!

In 1982, some years after I had retired, my interest in computers began. I used to get YC to find my way around this newly opening world. The magazine really helped and I am still a regular reader. I have climbed from a Tandy CoCo via Microbee (ugh!), Amstrad 6128, Atari STE (the best with remarkable utilities and file handling, but just not fast enough for my interest in fractals). Trying to get speed, I bought a 386SX with Windows 3 — it was still too slow and Windows was an awful intro to the DOS world. After reading about GeoWorks in YC, I tried it out, then bought it. It really is a neat system. I now have a 486DX 33 which gives me enough speed so I don't get too bored while waiting for the fractal maths to work out. I also have a CD-ROM drive — Windows 3.1 was part of the package: it's abominable, even if it's an improvement on Windows 3.0. I still do most everything in GeoWorks.

However, there is one crucial disadvantage with GeoWorks that has caused me a lot of trouble, and that is the American printer drivers. I have a new Star LC24-200 for which GeoWorks supplies no printer driver, so I have to use a near — but not quite — equivalent. If I use the supplied templates in GeoWorks, some of them are cut off on the right-hand side when printed. I've had discussions with Computermate [the Australian distributor of GeoWorks] and Star, but there doesn't seem to be a solution. Potential buyers of GeoWorks should be alerted to try it out comprehensively on their printers first.

Now — I hope you will forgive a mild scolding. At least twice in the past few months you have inflicted on your readers the howler of muddling two quite distinct concepts: Parkinson's Law and the Peter Principle.

Cyril Northcote Parkinson is (was?) a British historian, who defined in his 1958 book *Parkinson's Law* how 'work expands to fill the time available for its completion'. It is still much cited in business, government and education.

Lawrence J. Peter, born in Canada, became an educator in the USA. In the mid-sixties he made the observation that, in a hierarchy every employee tends to rise to the level of his *incompetence*, that is, people get promoted until they reach a level at which they are no longer capable of performing satisfactorily.

Parkinson has had by far the greater influence on modern thinking and deserves full recognition for his ideas. The Peter Principle is an accurate observation on how large organisations function, but hardly a world shaker like Parkinson's Law.

#### **John Martin-Jones**

*You're right, of course — I don't know what I was thinking about: Murphy Peters Law, perhaps? My favourite corollary of Parkinson's Law goes something like: 'In any large organisation, the time spent discussing a proposed expenditure is inversely proportional to the amount.' So, a company board will spend months arguing over how much to pay the tea lady, but will approve the million dollars for a computer system in a matter of minutes — we see the results of that everyday.*

*There's good news about your colour printing problem. Within a month or so GeoWorks will release a new version of Ensemble which will support colour printers and fix that 'undocumented feature' that appears when printing from some templates, as well as including a number of other enhancements which will put it well on the road to 'killer application' status. Watch these pages for more — we hope to have a full-review in the April issue.*

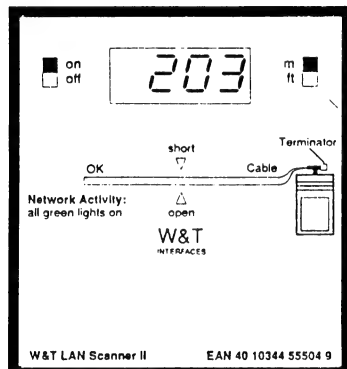
*You didn't mention specifically which Star printer driver you are using, but it should be one of the NX-2420 ones (which is the North American model number equivalent of the LC24-200). I believe the new release of Ensemble will include a driver for the NX-2420 Rainbow, the colour model, and this should solve your problems.*

### Betcha!

I'm one of a number of computer buffs in an isolated mining town. The other night at the pub (where else?) several of us were arguing about the first PC. To settle who shouts for a night: how much RAM did the



# MicroGram Computers



## LAN Tester

- This German made tester is a Time-Domain-Reflectometer which identifies and measures the distance to a short circuit or open circuit.
- Designed for Thin Ethernet, Arcnet and Token Ring (with adapters) etc.

Part No. 11550

LAN Tester **\$1350.00**

Part No. 11551

Token Ring Adapter **\$500.00**

## Password Security Card

- A Hardware based password security lock.
- Cannot be by-passed during boot-up.
- ROM based software do not occupy conventional memory.
- Supports up to 32 users with different access rights.
- A removal resistant screw fastens card in computer, a special tool is provided for fitting/removal.

Part No. 3054

**\$190.00**

## "TOPWARE" Version 5.1

- Hardware Independent Network Operating System.
- Network up to 64 computers.
- Share printers, files etc.
- Allows concurrent connection between TOPWARE & UNIX through Topware TCP/IP. In addition Topware and Unix operate simultaneously on one Ethernet card.
- Gateway support through PC-ANYWHERE.
- Modem sharing with Modem Protocol.
- Full UPS support.
- TopBIOS (NetBIOS) now supports up to 250 sessions and network commands.
- Superior print manager under Windows 3.x
- Screen broadcast facility under Windows 3.x

Part No. 11227 2 User Software

**\$95.00**

Part No. 11203 5 User Software

**\$430.00**

## EPROM Writer Cards

- Ten models to choose from
- Includes software.
- Programs most standard E(E)PROMs
- Read EPROMs and save to disk.
- Read from disk and write to EPROM.
- Modify EPROM.
- Blank check.

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- Part No. 3017 Single burner to 1M **\$345.00**
- Part No. 3038 Four burner to 1M **\$475.00**
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- Part No. 3057 Single burner Serial to 512K **\$260.00**
- Part No. 3058 Single burner Serial to 4M **\$464.00**
- Part No. 3079 Single burner to 2M H/Spd **\$450.00**
- Part No. 3080 Single burner to 8M H/Spd **\$725.00**
- Part No. 3087 Four burner to 8M H/Spd **\$835.00**
- Part No. 3088 Eight burner to 8M H/Spd **\$1350.00**

## Barcode Reader

- Connects between the keyboard and the computer, there's no need to make any changes to the application software, i.e. operates with standard accounting, inventory, library programs etc.
- Autodiscriminates between most barcode symbologies.
- The barcode may be scanned alone or alternatively a CRLF may be appended.

Part No. 8005 BCR with SS Wand

**\$490.00**

Part No. 8115 BCR with CCD Scanner

**\$960.00**

## 12 Bit AD/DA Card

- A/D - Sixteen 12 bit channels
- Conversion time 60ns each channel
- D/A - One 12 bit Channel
- Current Settling time 500ns.

- Unipolar 0V to 9V
- Bipolar -9V to 9V

Part No. 17000 12 Bit AD/DA Card **\$165.00**

Other models also available:

Part No. 17001 Super 12 Bit AD/DA **\$265.00**

High Performance Model

Part No. 17007 16 Bit AD/DA **\$735.00**

Part No.

## TV Tuner Card

- Provides Video and Audio signals as source for Monitor TV Card, Video Grabber Card, Sound Card etc.
- Channel selection software runs under DOS and Windows.

Part No. 3092 **\$450.00**

## Four Port Serial Card

- Includes four RS232C asynchronous serial ports.
- Supports MS-DOS, CONCURRENT DOS, MULTI-USER DOS, PC MOS/386, XENIX/UNIX, etc.
- Compatible with AST FourPort/XN card.
- Driver and diagnostic software included.

Part No. 2010 **\$135.00**

Four port excl. CONCURRENT DOS P/N 2081 **\$105.00**

Eight port also available P/N 2041 **\$410.00**

Eight port excl. CONCURRENT DOS P/N 2025 **\$300.00**

## Digital I/O Card

- 48 Digital I/O lines programmable as input or output.
- 16 channels have LED status display.
- 3 independent 16 bit counters.

Part No. SI8255 **\$135.00**

## Intelligent H/Disk Controller For AT BUS Drv

- Supports up to 4 AT-BUS hard disk drives.
- Will coexist with existing MFM, RLL, ESDI etc. drives
- Will allow the system to boot from any drive.

Part No. 2061 **\$195.00**

## IDE Interface For XT

- Allows standard AT bus drives to be operated in an XT

Part No. 2060 **\$125.00**

## Top 2000+ Share Programs - CD ROM

- Over 2000 of the latest Shareware programs.
- Easy to use menu allows simple access to all programs.
- Programs are NOT archived - run direct from menu.

Part No. 81044 **\$85.00**

## 16550 UART with FIFO's

- A direct replacement for the 16450 and 8250 in character mode.
- Includes 16 byte buffers on transmit and receive in FIFO mode.

Part No. 8127 **\$30.00**

## A4 Colour Scanner

- New model now 600dpi.
- Will scan A4 size documents.
- Scan area: 50mm x 90mm to 215mm x 355mm.
- HP Scanjet Plus compatible.
- Includes Picture Publisher (Plus) software.
- 256 Gray scale model 300dpi.

Part No. 8155 Colour **\$1725.00**

Part No. 8116 256 Gray Scale **\$1050.00**

## Keypad

- 31 Key Keypad with standard keyboard interface.
- Suitable for POS, Industrial Control etc.

Part No. 8169 **\$130.00**

## Disk Mirroring IDE Cache Controller

- Transparently writes data to two drives at the same time. Provides realtime on-line backup.
- True hardware architecture ensures there is no performance loss while writing to the mirroring drives.
- Cache memory may be fitted from 512kb to 16Mb. Memory size automatically detected - no jumpers.
- Average seek time less than 0.4ms.
- Supports up to 4 IDE hard drives and 2 floppy drives.
- Up to 2 (two) controllers may be fitted per system.
- Supports MS-DOS, Novell Netware 286 V2.x and 386 V3.x, Windows, DR DOS, Xenix, Unix and OS/2.

Part No. 2075 **\$580.00**

Also available STD Cache Controller

Part No. 2067 **\$520.00**

## Hardware Image Compression Card

- Hardware based image compression and expansion in accordance with JPEG Rev.8.
- Supports 24-bit colour (True Colour), 15/16-bit colour (Hi-Colour) and 8-bit grayscale.
- Quality factor selectable from 1 to 100.
- File formats JPG to/from BMP, TGA, MPP or TIFF.
- Operates under Windows 3.1
- C routines to integrate with developers software.

Part No. 3076 **\$840.00**

## Hard Drive Encyclopedia

- 3 volumes of installation info.
- Setup info. for over 1500 drives. Layout/jumper drawings for over 200 drives and 250 controllers.
- Includes Hard Disk Data Base software.
- Optional subscription update.

Part No. 80053 **\$455.00**

## Industrial Control Card

- Provides 8 I/O Ports
- Each I/O Port Includes 8 Digital I/O Lines

Part No. 17002 **\$130.00**

Supports the following expansion Boards.

8 Channel Relay Output. **\$300.00**

8 Channel Opto Isolated input. **\$300.00**

8 Logical output. **\$240.00**

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AC SSR Part No. 17009 **\$270.00**

16 Channel Relay output **\$270.00**

Part No. 17004 **\$255.00**

16 Channel Opto Isolated input. **\$255.00**

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## Digitiser

- Essential for serious CAD work and applications where a mouse would normally be used.
- 12"x12" Digitiser emulates 9 of the world's most popular digitisers.
- Will also emulate MS and PC mouse, more accurate than an optical mouse.
- Custom setup may be stored in EEPROM for default configuration at power on.

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- Operate multiple VGA monitors from one computer.
- Each monitor may be up to 75m from splitter.
- Models for 2, 4 or 8 way split.

Part No. 3070 2 Way **\$295.00**

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first IBM PC have? What was the capacity of the first floppy drives? And (this is the heated one!): who wrote the first version of MS-DOS?

**Greg McAuliffe**

*The first PC had 16KB of RAM, expandable to 64KB on the motherboard. While that's laughable by current standards, it was almost respectable back in '81. In '83, IBM released the PC-2 and upped that to 64KB as standard, expandable to 256KB. The first PC floppy drives could store 160KB (other floppy drives of the time were limited to between 50- and 90KB); the PC-2 raised that to 320KB by writing on both sides of the floppy. This machine also brought colour to the desktop with the CGA (colour graphics adapter); the earlier one used the MDA (monochrome display adapter).*

*About DOS: my understanding is that IBM contracted fledgling Microsoft to come up with an operating system that would allow applications from the then-dominant CP/M operating system to be easily modified to run on the PC. Microsoft bought a CP/M clone from another Seattle firm which was using the system experimentally — after a bit of tweaking this became MS-DOS version 1.00; version 1.25 enabled writing on both sides of a floppy.*

## Technical Aid to the Disabled

In the December issue Sandra Pilkington enquired about 'disabled' computing. Sandra's problem could well be solved by contacting Technical Aid to the Disabled. The Librarian, Maureen Webb, on (02) 808 2022 Wednesday or Friday between 10am and 4pm; or by writing to her c/o TAD Library, PO Box 108, Ryde 2112 NSW.

Technical Aid to the Disabled is a voluntary organisation whose members delight in solving problems experienced by persons with disabilities. Their December Journal (Vol.12 No.4 Dec 92) has two items which would interest Sandra: 'Device Gives Tongue Access to Computers' and 'Westpac Donations Boosts Computer Loan Scheme'.

I myself have taken to a computer because of Parkinsonism.

**F.J. Evans**

*Thanks for that, I've passed the information on to Sandra. I'd be interested in hearing about other, similar organisations, from other readers. Perhaps later this year we could do an article on the work being done to help the disabled through computers.*

## Words on WordPerfect

As Stephen O'Brien noted in his review of WordPerfect in December, the use of 'Alt=' to access the pull-down menus is an option that is awkward to use. Instead, I have used the set-up options of having the menu bar remain visible and having the Alt key select

the pull-down menu — Shift-F1, D, M, then A (yes) and V (yes). A menu can then be pulled down by using 'Alt Enter', although since getting a mouse I have found it easier to access the menus by clicking on the one I want to use.

The Function keys that I now use regularly are only F5, F7, F8 and F1, using the mouse for most other options. Yes, for me, getting the mouse made a world of difference. Put me down as an entrenched WordPerfect user!

Thanking you for an excellent and informative magazine.

**David Longmuir**

## More Words Perfect

Perhaps if Stephen O'Brien was slightly familiar with WordPerfect 5.1 for DOS, he would be less prejudiced against it. He obviously has not set the program up properly if he needs to press 'Alt=' to summon up the menu. Correctly set up (via Shift-F1), the Alt key by itself will display the menu, and it can also be displayed by pressing the right-hand mouse button. Nobody said that user-friendliness should extend to being able to ignore the manual!

My family uses WordPerfect 5.1 for uni assignments, thesis, CVs and personal correspondence. Even those members of the family who have not the slightest interest in computing can 'drive' WordPerfect for DOS using a half-page guide which I have prepared. If infrequent users can prepare complex documents with only occasional reference to a half-page 'cheat-sheet', I am more than satisfied with its user interface.

The ability to interchange documents between the DOS and Windows versions is a major 'plus', also the seamless manner in which WordPerfect imports and exports various text and graphics files should rate a mention in any review. The cross-referencing and indexing abilities make thesis preparation almost a pleasure. Australian spell-checking is nice, as is the availability of a plethora of foreign characters.

The advice that I give to computing neophytes is 'don't waste your time with any word processor other than WordPerfect'. MS Word is an acceptable alternative, but why not stick with the strength?

New users of WordPerfect have a lot of trouble understanding printer selection and document re-formatting for alternative printers. This is not well covered in the manual. The other key to trouble-free operation of WordPerfect (and this applies to most other software) is the establishment of appropriate directories on the hard disk for user documents; very few school- or TAFE-trained users are properly grounded in this respect.

I use WordPerfect for Windows almost exclusively (now that the interim release has improved its performance); on a good computer, the performance is outstanding.

**R.G. Megaritty**

*Stephen O'Brien replies: Perhaps if you were slightly less familiar with WordPerfect 5.1, then your prejudice for it would be of a more sufferable level. You are correct in that the Alt key by itself can display the menu, but the same setup procedure you detail will, if necessary, change this to make allowances for TSR programs that also require the Alt key. The only certain way to access pull-down menus in WordPerfect is via Alt=. You will find this, with accompanying explanation, fully detailed on page 384 of the 900-page reference book.*

*Your sweeping generalisation that 'nobody said that user-friendliness should extend to being able to ignore the manual' is truly an extraordinary statement! The whole point to user-friendly programs and interfaces is that one simply shouldn't need to use a manual. That is what the entire industry is striving for — the invisible interface. It is the carved in stone premise of the Macintosh, Windows, and every other GUI; and is a significant part of the promised rewards of Virtual Reality.*

*You seem a prime example of the results of WordPerfect Corporation's brilliant marketing strategy. You are fanatically enamoured, and show remarkable aptitude in press-gang-ing others. Despite this, I must say that the remainder of your remarks are both informative and interesting. Indeed, I am looking forward to receiving your comments on this issue's review of WordPerfect for Windows.*

## Logo Letter of the Month

Each month (starting this month) the most informative, witty, interesting or timely letter to 'Write Bytes' will win for its author a software package, courtesy of Logo Distribution — this month's package is Grammatik 5.

**The Logo Letter of the Month for February is 'GeoWorks is neat' from John Martin-Jones. Congratulations! Your package is on the way.**

'Write Bytes' is your chance to air your views or gripes about the personal computer industry — or to give credit where it is due. Also, if you have a non-technical problem you've been unable to solve, drop us a line. Write to **Jake Kennedy, Write Bytes, PO Box 199, Alexandria 2015 NSW**. If you have a technical problem you'd like solved or a solution you'd like to share, see 'Tech Tips' (you could win a \$100 voucher from Software Express or Rod Irving Electronics for your efforts). □



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## NOTEBOOK 386 SX 25

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- 386 DX 40 MHz System Board
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# YOUR COMPUTER'S 11TH ANNUAL PERSONAL COMPUTER OF THE YEAR AWARDS

1 9 • 9 3

In reviewing the year's releases to draw up our list of Finalists, we could only wonder: 'Has the Golden Age of personal computing past?'

**H**AS THE GOLDEN age of personal computing past? Last year we noted that 1990 was a year of 'technological consolidation'. The industry was catching its breath before taking off on a series of leaps in 1991 — but developments through 1992 showed that those leaps remained more conceptual than technological.

Last year's loudest buzz word was 'multimedia'. For all the hype, it still hasn't amounted to much. Lotus produced a CD-ROM version of 1-2-3 which featured appropriate spreadsheet music and Microsoft has launched its second piece of hardware, a sound card. Those were probably the biggest 'multimedia' events of the year. While a number of so-called 'multimedia' packages reached the market, none of them took full advantage of the technology.

In fact the only multimedia winners so far have been sound card manufacturers, notably Creative Labs with its Sound Blaster series. But of the thousands of Sound Blasters in use in Australia, there are most likely only a dozen or so that aren't used primarily for playing games. So far this is the only application area that has been affected by the concept of multimedia. It's a logical one — smooth animation, adventure music and characters with individual voices can do for a game what they could never do for a database or word processor.

So, multimedia remains a concept that is yet to be truly implemented in the wide world. We need to see a number of developments and even breakthroughs before it will. The biggest problem is storage space

— smooth animation and well-modulated voices take volumes of hard disk space. The solution isn't just building higher capacity drives and making them smaller; much more efficient ways of storing data need to be found.

A second problem is in the PC's expansion bus. Whether ISA, EISA or MCA, the buses most widely used today run slower — much slower — than the hot CPUs they are connected to. Since just about everything in and everything out of the CPU needs to go through the expansion bus, it's a real bottleneck.

The solution? It's easy — eliminate the bottleneck. And maintain compatibility (not so easy). The logical way around that bottleneck is to bypass the expansion bus, and that's what both Intel and Vesa are proposing with their 'local' bus specifications. These are designed to forge much closer links between the CPU and its peripherals. (We've already had a taste of this with local bus video, but the systems are all proprietary.)

The first generation of PCs has slipped into the past and the second — culminating with the 386 chip and Windows 3 — is showing its age. The third? It's still in gestation, but its final form isn't quite as fuzzy now as it was twelve months ago.

As well as employing local bus technology, it will most likely be powered by Intel's parallel-processing Pentium — the 586 — or MIPS design for ACE, the RISC-based R4000: one is about as powerful as the other and both are about ten times as powerful as a 486SX. A 400MB hard disk in a 1.5-

inch package will be fairly standard as will 256MB of RAM and a removable, read and write, optical disk (probably capable of holding as much as the hard disk). Full-sized monitors will display text and graphics with the sharpness of a laser print — their resolution will be something like 2048 by 2048 pixels. And the price? Check out today's price of a 486SX system and that's probably what you'll pay for this dream machine within three years.

Oh — and the ubiquitous mouse will have had its day. Its role will be supplanted and greatly expanded by pen, voice and fingers.

Last year, as background to the 10th Annual Computer of the Year Awards, we discussed the ACE (advanced computing environment) consortium and the place it was ready to play in the PC world. ACE arose primarily to give its members — originally 21, including Microsoft, DEC, Compaq and Zenith — a solid stake in the workstation market. At the time, this market was seen as the one which could offer the massive growth that these companies had become accustomed to. Another reason for the establishment of ACE was to break the almost absolute dominance that Intel held on the microprocessor market.

The desktop market had been slowing for several years. PC sales had reached a landmark — more upgrades than new machines were being sold. In other words, growth could no longer be expected from a never ending tide of new users and, while the market was certainly not saturated, it had reached a fairly stable maturity.



During the year, ACE slowly fell apart. Support for it became less and less vocal and, as a last straw, co-founder Compaq and leading Unix-vendor SCO bailed out. It seems that, given the economic climate, no one wanted to risk (RISC?) the investments made in the Intel platform and develop an entire new research, development and marketing framework. And — 1992 saw the Intel chips clearly emerge as the accepted 'standard' with even loners like Sun and NeXT announcing Intel chip-based versions of their products.

In fact, many former ACE members — notably Compaq and Microsoft — banded together to formulate a new set of specifications for high-end PCs which would probably be based around the Pentium and compete head-on with ACE hardware.

MIPS, the original driving force behind ACE, still managed to launch (on schedule!) an ARC (advanced RISC computing) range based on the R4000. The entry-level system, the Magnum 4000 PC-50, is a diskless workstation with 8MB of RAM and a 1024 by 768 pixel, 15-inch colour monitor. It's priced around \$19,000 — plus operating system.

There was plenty of news at the other end of the scale, too. Apple's Newton technology to be used in its Personal Digital Assistants (PDAs) came into focus during the year. It's doubly significant because it gives a taste of what end-users will see as the fruit of the IBM/Apple alliance. These 32-bit RISC-based units will use flash — PCMCIA — memory and will be designed around touch-screens and voice recognition held together with a modular, object-oriented operating system in a package about one-quarter the size of a notebook.

While Apple made a lot of noise about the PDAs during the year, when it came time for Fall Comdex, the company had gone quiet. The official Apple word was along the lines that the world wasn't ready for it yet, but insiders suggested the opposite was true: Newton was less ready for the world than Apple had hoped it would be by that stage.

Meantime, AT&T launched what it called the new 'era of the personal communicator' with a product based on the Eo Hobbit processor. AT&T is putting a lot of muscle behind the Personal Communicators, which are pen-based systems the size of a thin, hardcover novel and expected to retail for US\$2- to \$3000. The heart of these devices is on-chip support for electronic mail, fax, and wireless communications.

Toshiba has announced that it is beginning development of a Hobbit-based device (expected to ship about this time next year) and NEC went one step further, saying

it is not only developing a 'communicator' but is considering production of a Hobbit-compatible chip for use by other manufacturers.

AT&T also suggested that there was a need for software to allow transparent interoperability among the PDAs of AT&T, Apple and anyone else interested in entering the market. The company is banking on the technology becoming a mass market hit — but not until end-user costs are brought under US\$500.

### Computer of the Year

NOW THAT WE'VE considered what the future has to offer personal computer users, what about today? When the short list for the Finalists for Computer of the Year was drawn up, it became immediately apparent that for the third year running we could say 'it's the most diverse collection of Finalists' we've ever had. This reflects both the maturing of the market evidenced by 'niche filling' and also some uncertainty just yet of exactly where the future of personal computing lies.

**Amstrad's NC100:** With its Z80 micro-processor, 64KB of memory and an 80-character by 6-line screen, the NC100 sounds like a throw-back. But — the machine is significant because it represents a very real attempt to address a market well-beyond that of traditional personal computer users. It's been designed as a true mass market, consumer product; it recognises the fact that most PCs are still used for one type of application: word processing.

**Apple's Duo-PowerBooks:** Not to be confused with the recently released range of new PowerBooks, the Duo-PowerBooks integrate a portable with a docking station. Compaq pioneered the idea with the optional docking station for the LTE386s/20, 1991's Computer of the Year but Apple have pushed the technology much further along. Here the docking station is integral to the system — the portable has the hard disk, CPU and system RAM, while the dock drives the external colour monitor, and has a power supply/recharger, two NuBus expansion slots and a SuperDrive. (Standard PowerBooks can't be plugged into the dock because they lack the necessary 152-pin connector.) The Duo-PowerBooks are a well-developed recognition of another fact of computing: the vast majority of portables are used to take work home from the office and those are the only places the machines are ever used.

**'It's the most diverse collection of Finalists' we've ever had.**

**Compaq's ProLinea range:** Over the last few years, Compaq, more than IBM has been the acknowledged pace setter in both the desktop and portable worlds. Of course, the company has always put a dollar premium on those machines — the ProLinea range, more than any other re-

lease during the year, recognised the rising resistance by consumers, whether they be stand-alone users or parts of huge networks, to paying big dollars for advanced technology. Above we wondered if the 'golden age' were drawing to a close — if it is, this is certainly a sign of it: the market has gone from being technology driven, to price driven. Not that the ProLineas lack a high-level of technology: as standard, the systems have a 25MHz 486SX with 4MB of RAM expandable to 32MB on the

mother board, and high resolution graphics (1024 by 768 pixels with support for 256 colours).

**Hewlett-Packard's Vectra 486U:** Released in June, HP's Vectra 486U systems were the first PCs to begin to come to grips with the power of the 486 chip by instituting local bus graphics. As indicated above, this is an area in which PC hardware design has been lagging behind the available software, and one of the hold backs for full-fledged multimedia applications. HP has gone a step beyond the local bus concept by adding a graphics coprocessor to give even more speed to graphics applications. Considering how all embracing these applications are now — even operating systems are now graphics-based — this move will be welcomed with open arms by everyone who has had to spend time drumming the desktop while even relatively simple graphics were re-drawn on the screen.

**IBM's Ultimedia system:** IBM has taken a much broader view of multimedia computing than most other vendors. While the Ultimedia was the first truly integrated multimedia system, its significance lies in the thinking behind it: for users to gain the most from information, it shouldn't be simply presented, it should be experienced. The system is based on a PS/2 Model 57 with a CD-ROM drive and audio capture and playback facilities, and can be configured to run full-motion video from a range of sources, a touch display and a 127MB rewritable optical drive; there is even the ability to display television on the desktop monitor. The Ultimedia is supported by a full range of applications which allow users to develop their own applications for use in



# PCs of yesteryear

THIS IS THE ELEVENTH year that *Your Computer* has presented an Award for the Personal Computer of the Year and the tenth for Software Product of the Year. The history of the Awards is quite an interesting summary of the era of personal computing and highlights both the most and least successful products to appear on the market. The winners were invariably innovative in one way or another, and showed what was considered to be state-of-the-art at the time.

The first awards, announced in the May 1983 issue, had six hardware finalists — three 8-bit machines, and the rest with 16-bit processors. One of these was the original IBM-PC, and there was the Columbia MPC, one of the first PC clones. The award was won by NEC's Advanced Personal Computer, an 8086-based machine with an impressive (for the time) graphics resolution of 640 by 475 — that's only five lines less in the vertical direction than the current VGA!

The dominant operating system at the time was CP/M, either version 2.2 for the 8-bit machines, or CP/M-86 for the 8088 and 8086 processors.

In 1984 we introduced a new category: Software Product of the Year, which was snapped up by Lotus 1-2-3 — one of the most successful programs ever written. On the other hand, the winner of the hardware award was the ill-fated Apple Lisa, which was so far ahead of all the other finalists in terms of features and perform-

ance (it had a 68000 32/16-bit processor, and a whole megabyte of RAM, that the judges couldn't let it go past even though it was apparent it would never be a marketing success).

The first laptop to win the PCOTY Award was Hewlett-Packard's HP 110, the winner in 1985. It sported a 5.33MHz 80C86, 272KB of CMOS RAM, a 16-line display, and a single disk drive. That year, Microsoft's Flight Simulator stole the software award from the likes of SideKick, Open Access, Symphony and Concurrent CP/M 3.11 (for the IBM-PC, believe it or not).

Big Blue took out the 1986 PC Award, with the PC/AT. Although the machine had already spawned the first of a never-ending rush of clones, IBM was awarded the prize for setting the pace. The Software Award went to Symantec's Q&A, the integrated database manager and word processor.

In 1987, the finalists included the Commodore Amiga, Apple IIGS, and the Toshiba T3100 laptop, but the winner was Compaq's Deskpro 386, one of the first '386-based PC clones to appear on the market. Aldus took out the Software Award that year for PageMaker, which ran in both the Mac and DOS environments (the latter with Windows).

1988 saw a close battle between the Compaq Portable 386, Toshiba's '386-powered T5100, and the eventual winner, the Macintosh II. The Mac II finally delivered the sort of power machine which Ap-

ple promised with 1984's hapless winner, the Lisa. The Software Award again went to a desktop publishing package — this time it was Xerox's Ventura Publisher.

Toshiba took out the hardware category two years in a row, in 1989 and 1990, after making the finals at least every second year since the awards' inception, for the T5200, and the T3200SX, respectively. The software awards went in 1989 to Wingz, the Mac spreadsheet, and in 1990 to Hewlett-Packard's NewWave operating environment.

1991 saw another portable, the Compaq LTE386s/20, a full-featured notebook with an optional desktop docking station, to make it a complete desktop/portable solution. Software Product of the Year went to Windows 3.0, which has brought about the single biggest revolution in PC software since MS-DOS.

Last year a late entry, NEC's UltraLite SL/25C, walked off with the Award. Its active matrix colour display, use of the power-saving 386SL chip and barrier-breaking price made it the first of a new generation of battery-powered notebooks. GeoWorks Ensemble was an obvious choice for Software Product of the Year — while it might have seemed a step backward to those accustomed to software that needed 100MB of disk space and 4MB of RAM, it squarely addressed the *real* needs of half of the users in the world. That's a lesson other developers could learn a lot from.

places as varied as the classroom, office and department stores.

**Toshiba's T100X:** While the T100X isn't the first pen-based system chosen as a Finalist (the NCR 3125 bears that honour), it takes the technology to new heights. Weighing only 1.5kg with battery, the T100X has a low-voltage 25MHz 386SX processor, 4MB of RAM (expandable to 20MB), a 40MB hard drive and VGA display with 16 shades of grey. The base unit can be expanded via two PCMCIA flash memory slots and it has a full complement of serial, parallel, keyboard and external floppy drive ports. While the T100X — like every other pen-based system at the moment — is primarily intended as a development platform, it sets a standard that will form the basis for true, on-your-feet mobile computing.

Those are the hardware Finalists for 1993 Computer of the Year. Next month,

we'll bring you our Winner. Note though, that entry to the Awards doesn't close with the announcements here — it's kept open right up to press time for our March issue.

## Software Product of the Year

BORLAND'S PHILIPPE Kahn recently made the point that the power of PC hardware is increasing at an exponential rate and to keep up, the rate of software development had to be accelerated. To demonstrate the changes needed in software writing, Kahn described how, by the year 2000, it would be impossible for a programming team of any size to create large applications before they became obsolete.

To illustrate this, he introduced 'Philippe's Law' which states that the productivity of a software engineer in a team of  $n$  engineers is diminished by dividing it by the cube root of  $n$ . For example, engi-

neers in a team of eight will only be half as productive than if they were working on their own.

The solution, he said, is to use object oriented programming so full-powered applications can be developed using far less programming. He said that this approach could be summed up as 'divide and conquer' — programmers would, essentially, work on their own or in small teams to develop reusable components that could be shared between applications.

'The software industry will become more like the semiconductor business with factories building various components. They could be full scale products like word processors, or a simple text engine component,' he said and concluded: 'Object-oriented computing will bring the power of computing to everyone, everywhere. Personal computing changed the way people



worked — object computing will change the way the world works. This is the wave of the future!

That's a commendable vision for the future of software. And it dovetails with a prediction of Microsoft's Gates in which he stated that, in the near future, we would only have about ten large software publishers. The rest of the software industry would be producing add-ons and enhancements for the products for those companies. All of which points to quite an integrated future for software.

In fact, if there is a single theme to this year's Software Finalists, it would be 'integrated'. Each of our four Finalists demonstrates a form of software integration, combining functions in a single package that were only available previously with several, or, in some cases have smoothly integrated functions that weren't previously available.

**Hewlett-Packard's NewWave 4.0:** In 1990, we named the first version of NewWave as Software Product of the Year. Since then, many of the features that most impressed us about NewWave have found their way into Microsoft's Windows — object linking and embedding was foreshadowed by NewWave's compound documents, and the earlier Agents were a precursor to the system-wide macro language recently announced by Microsoft. NewWave brings object-orientation to users — and offers a new way of thinking about for documents, for example. To create a new document, you first select an Object Master, which is a template based on, say, your favourite spreadsheet, then select Create Object and then the application is launched. When you exit from the spreadsheet, it is then represented on the desktop as a new object — selecting it launches the application and opens the document. This object orientation is carried through to a file management system that is so simple, that the activity becomes almost trivial. NewWave is more than a front-end for Windows, it's an indication of the future of Windows.

**Lotus Ami Pro 3:** For sometime now, the difference between word processors and desktop publishing programs has become less and less well-defined. And, the package that has done most to blur that definition is Ami Pro, particularly for technical documents. But Ami has become more than a high-end word processor (or a low-end DTP package) — its well-integrated features make it almost an application type of its own. While the Windows-based program supports OLE, it extends this basic capability with Tools — which allows users to edit a linked document on the Ami

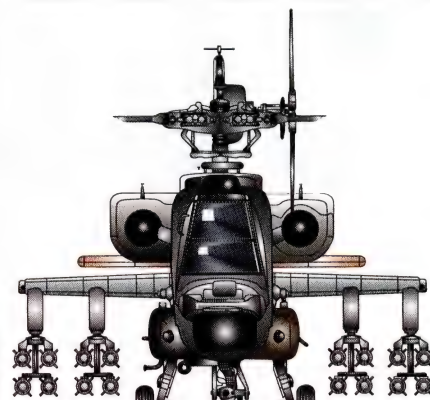
screen. The Lotus SmartIcon facility has been enhanced with the ability to set up and save icon groups for specific tasks. Another time saver in the new release is the ability to select a block of text and then move or copy it to a new location by dragging it with the mouse and dropping it into place. Other features that blur the application boundaries are on-screen document merging, document and stylesheet viewers, a grammar checker and a real dictionary.

**Object's Layout version 3.0:** Layout is a powerful, complete programming system, which was one of the first of the much-vaunted case-aided software engineering (CASE) tools. The package was originally aimed at end users, but its developers had done such a thorough job in offering short cuts to generating code, that it soon had a cult following amongst professional programmers. The idea behind the program, is that you create a flowchart and it writes the code in C, C++, Basic, QuickBasic or Pascal; alternatively, it can create a stand-alone, royalty free .exe file. Version 3.0 has added advanced debugging tools, full hypertext capabilities, a sound management system, a printer toolkit and file conversion utilities. Even if you never use Layout yourself, chances are very good that you will have used a program produced by the 65,000-odd programmers who do.

**Quarterdeck's Desqview/X:** Quarterdeck's latest release in the Desqview family is, essentially, a multitasking graphical user interface that has the network and graphics awareness of the X-Windows standard. It provides exciting capabilities — such as the ability to have complete control of applications running on a remote DOS or Unix system, opening up a sophisticated networking choice beyond the traditional client/server or peer to peer ones. The application runs on the remote machine without disturbing its own user and is displayed locally and accepts keyboard input from the local machine. Other innovative features are scalable windows in which a screen from DOS application can be shown partly or in its entirety, large or small; the highly configurable environment which makes it simple to set up new menus and link menu items to specific applications or scripts. Desqview/X also supports Windows 3.1, giving direct access to that wealth of applications.

### Next month . . .

THOSE ARE OUR 1993 Finalists for Computer of the Year and Software Product of the Year. Next month we'll announce the Winners and also present this year's Commendations for Australian Hardware and Software. See you then! □



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# COMPUTING





# ON THE GO



**Nowhere in the computer industry is there more activity in research and development than in the area of portable computing. Mark Cheeseman looks at some of the recent fruits of this effort.**

**T**HE EVER-SHRINKING portable computer seems to have all but halted its size spiral, having attained an acceptable compromise between size and functionality for the needs of most people.

Long-time readers might remember the Osborne 1 — a CP/M machine about the size of a portable sewing machine, complete with a 5-inch video screen, and twin floppy drives (and later, a hard disk). At the time, it didn't lack much that you could get in a full-sized PC. But it was big and heavy (although Osborne claimed you could fit it under an airline seat).

At the other end of the scale, at around the same time, Tandy produced the first of its portable machines — the Model 100. Here, portability was the prime design criterion, and it became an instant hit with peripatetic journalists. It didn't have any disk drives (they were too big and power-hungry), relying on an optional external disk drive or cassette tape for storage. It also had a serial port and file transfer capabilities, so journalists could file stories via modem (they were all acoustic couplers in those days).

Ever so gradually, the two camps have converged. The sewing machine boxes were replaced by lunch boxes, and then by clam-shell affairs (that were still too big to be called laptops). Cathode ray tubes gave way to LCDs. 5.25-inch full-height disk drives shrank to 3.5-inch half-height devices. And at the other end of the scale, the screens got bigger and more readable, floppy drives, and later hard drives were added, and memory capacity rapidly approached that of equivalent desktop models.

The end result is the notebook we have today — 386 power, a couple of megabytes of RAM, a 60MB or larger hard disk, and backlit VGA screen. All in a box about the same size (albeit thicker) as the original Tandy 100.

Portable computing and telecommuting go hand-in-hand, though which is the cause and which the effect is unclear. The two possess a synergy which is changing the face of the office workplace. No longer is it necessary for business people to work late at the office to finish that report, or to come into the office on weekends to catch up on a backlog of work.

With a notebook, you can just pick it up and finish it off at home. People who spend



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Toshiba's T1800 series marks that company's re-entrance to the low-end notebook market. There are three models in the range, based on Intel's 386SX processors running at 20- or 25MHz. The T1850C (pictured) includes a colour passive matrix LCD screen, which has a much higher contrast than most other passive screens, although it's not quite as good (nor as expensive) as an active matrix screen. Standard RAM is 4MB, which can be expanded up to a maximum of 20MB. Pricing starts at \$3283 for the T1800, up to \$5184 for the model pictured, from Toshiba ISD, 008 021 100.

a lot of time out of the office have the benefit of computer power in the field as well as in the office. Travellers who seem to spend more time in hotel rooms and on aircraft than they do in the office, no longer have to write that time off as wasted.

Notebook computers still carry a price premium over equivalent desktop models, and for good reason. It takes more engineering and development work to fit all the components of a notebook in as small a space as practicable than it does to buy in a heap of standard sized boards and drives, and bolt them in a standard sized box with standard sized screws to make a typical desktop clone. Notebooks have to use small, low power disk drives, relatively expensive LCD screens, special keyboards, and a purpose-built motherboard that incorporates many of the functions that desktop motherboards leave to expansion cards. This all costs serious money, which has to be recouped from a smaller sales volume.

The size reduction in notebooks witnessed over the past couple of years owes more to mechanical factors than electronic ones. Sure, faster processors and higher density memory have had an impact on the design of notebooks, but the result of these developments has been faster machines with more memory — nothing unfamiliar here.

While floppy drives are constrained to use standard 3.5-inch media for interchangeability reasons (as witnessed by the spectacular failure of Zenith's attempt at marketing a

machine using a 2.5-inch floppy drive), hard disks have no such handicap. These tiny hard drives are already commonplace, with capacities of up to 200MB currently available in this form factor. And as if that's not small enough, Seagate is shipping its new 1.8-inch hard drives, with formatted capacities ranging up to 80MB, to OEMs.

Small drives aren't only desirable for their low size and weight. They also consume less power than their larger cousins, which results in indirect weight savings in the battery department. The smaller disks also possess less inertia, resulting in quicker spin-up times when the drive comes out of power-down mode.

That's not to say that new technology at the chip level hasn't helped produce smaller and lighter notebooks. The increasing use of low-power CMOS devices, and more recently, the arrival of components designed to work at 3.3 volts, rather than the 5 volts used by current machines, is reducing the power requirements of the



Texas Instruments' WinSLC is based on the 486SLC processor, and is designed as a GUI machine from the outset. It comes pre-loaded with both DOS 5.0 and Windows 3.1, and a 'Thumbelina' mini trackball is also supplied as standard. With 2MB of RAM (expandable to 6MB) and a 60MB hard disk, it is priced at \$3290, from TI, (02) 878 9000.



# Wolfenstein 3D

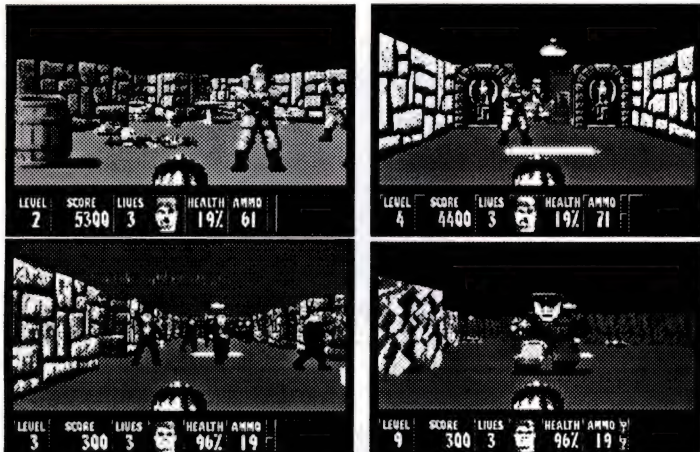
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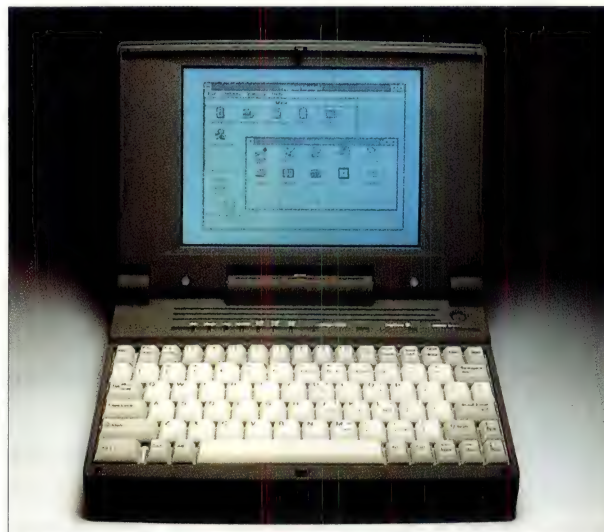
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The SunRace HyperBook range has more standard I/O capabilities than most, which goes some way toward offsetting the lack of expansion facilities in notebooks. Included are an Adaptec SCSI-2 port, ideal for CD-ROM drives or extra hard disks, two serial ports, a dedicated mouse port, and even a port for a grey-scale hand-held scanner. Processors range from a 386SX/25 to a 486DX2/50, depending on the model chosen. RAM is 2MB (expandable to 8MB) in the entry-level model, and 4MB (expandable to 20) in the other models. Hard disk sizes range from 60- to 120MB. Pricing starts at \$2000, from Anabelle Bits, (02) 313 6155.

rest of the machine as well. This is somewhat offset, however, by the increased power requirements of ever-faster CPU and support chips.

The batteries that run the whole show are also changing. Nickel-cadmium (NiCad) batteries, for years the mainstay of laptops and notebooks (and indeed, most anything of a portable and electrical nature) are gradually being replaced by nickel-metal-hydride (NiMH) batteries, which offer around a 50 per cent improvement in storage capacity for a given volume. They're also far more environmentally friendly than NiCads when they eventually have to be thrown out — cadmium is a heavy metal, and tends to accumulate as it

moves up the food chain. The new batteries are mainly used in high-end machines at the moment, but as production costs drop, we can expect to see them eventually replace NiCads across the board.

## Ergonomics

THE TWO most critical components in any notebook, from the user's perspective, are the screen and the keyboard. Nothing is more distracting from the task in hand than having to continually fight with the keyboard layout, or squint at a low-contrast screen.

And it's the keyboard which ultimately determines the size and shape of today's notebooks. As it is, the current arrangement is a compromise, with the cursor control keys squeezed in any little corners where they'll fit, and the numeric keypad superimposed over part of the alphabetical keyboard, and accessed through an additional shift key. It's far from standard, but most people get used to it pretty quickly, and the keys that really matter — the main part of the keyboard, is unchanged from most desktop machines.

With screens, clarity, rather than size, is the main issue. Of course if the screen is made postage stamp size, you won't be able to read it, but there's no need to go to those extremes — the overall size of the machine is already constrained by the keyboard.



Olivetti's Quaderno falls somewhere between a notebook, and the palmtops we looked at in the December issue. You won't run Windows on this machine, but with a 20MB hard disk, 1MB of RAM, and 512KB of ROM, it's got more grunt than a palmtop. It can also replace a dictation machine, with a voice annotation system built in, as well as a loudspeaker and microphone. With a form-factor the size of an A5 sheet of paper, it's half the size of a notebook, and costs \$1599 from Olivetti, (02) 481 9552





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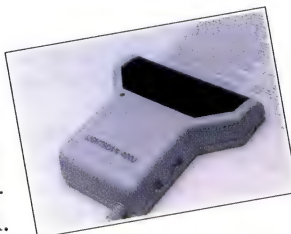
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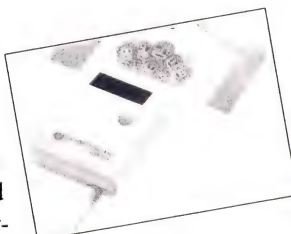
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# The new PowerBooks

AFTER A FEW YEARS in this business you tend to get immune to new-product briefings. Time after time you sit through a few boring hours of slide presentations while the marketing men from America attempt to explain why more-of-the-same-but-in-a-different-box products are the greatest thing for computing since the invention of peanut-butter-and-jelly.

I must admit that this was my mind-set when Apple called the tech-journos together to show their new product line: we had heard about the cut-down Classic line called 'Performa' (with a name so horrible that they aren't game to sell it here), and there were substantial rumours (or is that 'leaks'?) in the BIX and CompuServe forums about the new Mac IIvx and IIvx, some upgraded PowerBook portables, a CD-ROM, a new 14-inch colour monitor, and the 'Duo' docking system for portables.

We've heard about the PowerBook 145 which was announced a few months ago (they are still keeping the PowerBook 100 in the line for some reason), but now we also have the PowerBook 160 and 180 which both use 68030 processors running, respectively at 25- and 33MHz — so these portables are now serious number crunchers.

The machines look almost exactly the same as the models they replace, except

that they've added a video-out port on the back which allows you to drive a separate colour monitor. This was sorely needed by those people who use their PowerBooks for demonstration purposes — to drive a second colour monitor, or an overhead projection unit. Weight is still about 3 kilograms (6.8lb), which spares Apple the cost of having to insure against dislocated shoulders — a real problem with the first Apple portable.

The displays still use the backlit supertwist (model 160) and active matrix (model 180) technologies of the older PowerBooks, but you can now get 16 levels of grey instead of just glorious black and white.

In my brief experience with the machines, I thought that the screens were exceptionally good — certainly one hell of a lot better than the 140 that I've been using. The video-port output gives you the standard 256 colours for a colour monitor; but it can drive both VGA and SuperVGA monitors as well as which will be a great boon for demonstration purposes where you can't always find a Mac.

The portables come with 4MB of Pseudo Static RAM (expandable to 14MB), which should have been standard in the portable range from the start, and the 180 model has a floating-point coprocessor.

There's both 80MB and 120MB hard-disks available.

My only complaint about these machines is that they still don't seem to have fixed the 'disappearing cursor' problem, although an increase in screen contrast seems to have helped a bit. The damned cursor and the I-beam are both too thin for us older folk.

In case you haven't noticed it, the PowerBook cursor can disappear behind the bezel of the screen, and you can spend ten minutes looking for it if the light isn't right. Most older users have this problem, but I guess the Apple designers are barely reaching shaving-age, and they don't see this as significant enough to fix.

## Duo-docking

I MUST SAY THAT originally I was confused between the Duo-PowerBooks and the new conventional PowerBook models. From the pre-announcement reports, I assumed that you could dock any PowerBook into the Duo system and it would work. But it won't.

There are good reasons for this. If you look at the back-plane of the Duo portable you will see 152 good reasons — in the form of a very long, very complex connector, which carries information between the portable and the docking station. You

Liquid crystal displays (LCDs) have come a long way since the first digital watches and calculators, to the point where they're starting to look like serious competition for the cathode ray tube for desktop systems. The basic problem with LCD technology is that, as resolution increases, contrast is lost. Computer users need a lot of both, and considerable money has been invested by notebook manufacturers over the years, to develop better screen technologies.

The first significant development came with the super-twisted nematic (STN) display. This was the first display to offer both relatively high resolution and high contrast in the same display. The first laptop screens emulated the CGA adapter, which didn't pose much of a problem when most business applications were text-based. With the acceptance of Windows as the standard operating environment, VGA support became a necessity.

The most obvious factor differentiating notebook screens is that some are colour,

and others are monochrome. Colour screens still carry quite a price premium, so you'll have to decide whether your application really needs colour or not — you'd be surprised how little you really *need* colour. For most people, a good quality monochrome screen is better value than an indifferent colour screen.

You'll probably come across the terms 'active matrix' and 'passive matrix' in the context of notebooks, especially those with colour screens. The terms describe the design of the driving circuitry for the LCD screen, and it has a big effect on the contrast of the resultant display. Passive matrix is the simpler (and cheaper) of the two technologies, and is used for most monochrome screens. Active matrix, on the other hand, has a single transistor for each pixel on the screen, so they're considerably more complicated to manufacture.

Active matrix screens have much higher contrast than passive, and the difference is particularly noticeable with colour screens, although there are a few notebooks with

active matrix monochrome screens. Active matrix screens are also more responsive, so that fast movements of the mouse don't result in the on-screen cursor submarining (disappearing) as noticeable. Microsoft has also addressed the submarining issue from the software side, by allowing larger cursors to be used in Windows 3.1, although this isn't built into the standard Windows package.

The massive price jump from passive matrix to active is due primarily to the low manufacturing yields, though as the production process is refined, they're rising, and the costs are falling as a consequence. The reason for such low yields is because of the large number of transistors — four per pixel on a colour screen.

Each dead transistor is a dead pixel, which manifests itself as a little visible spot on the screen. Too many of those, and the screen starts looking rather dotted. With over a million transistors in a typical active matrix VGA colour display, even a 99.9 per cent yield in working transistors results in



need connectors for the desktop keyboard I/O, floppy drives, power-supplies, colour monitor, and so on.

The two Duo portable models (the Duo 210 with a 25MHz 68030 and the Duo 230 with a 33MHz 68030) are very thin and weigh quite a bit less than the standard PowerBooks. They house a hard-disk but have no floppy, and, apart from the large back-connector, there's only a modem output and a LocalTalk port.

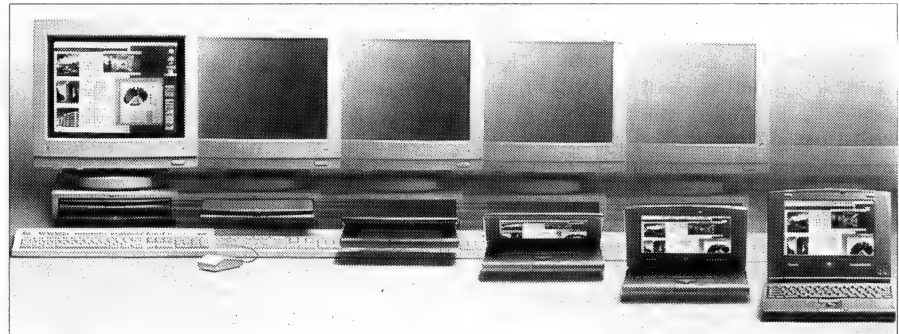
Duo machines aren't intended to be power-houses (there's no FPU — floating point unit — capability), and the idea is that you use the same portable machine at home as you do in the office. When you get into work you'll just plug your portable (still closed) into the docking station as if it were a very large video cassette being inserted into a VCR. The docking process uses a motorised action to drag in the portable and make a clean connection, and then it ejects the machine again at the end of the day.

The 152-pin backplane connector is normally covered (like the tape cover in a video-cassette) and it lifts, opens and makes all the necessary electrical links to the large colour monitor and full-size keyboard. It also joins the Duo's battery to the docking-station's power-supply/battery-charger — so there are no cable and connections to worry about.

It is a great idea provided the 152-pin connector continues to function without giving trouble. I am not suggesting that it

will give trouble — just that this is an obvious area of concern. I'm a natural pessimist in these matters.

This docking approach effectively gives you a desktop machine and a portable in one (but at more cost than just either on its own), and this means that you'll always have only a single version of any file or database. Updating a file out in the field, then forgetting to update it on your desktop, is a constant problem when you use two machines. It is the curse of my life.



There's also the security aspect to be considered; you are able to take all your sensitive files home with you when you leave the office. The down side of this arrangement is that you lose the 'back-up' value of having two machines — both the software backup and the hardware.

The docking station itself looks like a Mac IIsi with a very large bay in the front.

At the back of the unit are all the connectors you would get on a conventional desktop machine, and there's a SuperDrive floppy in the right-side. There's still considerable amount of electronics in the docking station — mainly VRAM for driving the colour monitor, the power-supply/battery-charger, and support for the two NuBus slots and the floppy disk drive.

There's a small MiniDock (little more than a large connector) which you can use out in the field if you want to add a stand-

alone floppy drive and an external video monitor without needing to cart around the full docking station.

All-in-all, the Duo docking system looks to me like a worthwhile development. Apple is going to lend me one in the near future, so I'll tell you more in the new year.

— Stewart Fist

more dead pixels than can be considered acceptable. Most manufacturers reject any display with more than four or five dead pixels.

### **Portable connectivity**

NO COMPUTER IS an island, to paraphrase John Donne. As society becomes more dependent on information, the need to transfer that information between computers has taken on increasing importance over recent years. Notebooks are no exception, and communications and networking is playing an increasing role in many applications of portable computing.

Many of the external add-ons for portables — fax and data modems, network interfaces, trackballs, and the like — are starting to appear as standard built-in items in more and more notebooks. Most notebooks have room for an internal modem, although finding an Austel-approved modem to suit your particular model can be difficult.

Modem expansion slots might be a

standard item, but they're far from standardised. Modems are often just tucked into an available corner of a notebook's internals, the size and shape of the resulting space a function of what other components the modem has to fit between. Even within a single manufacturer's product line-up, you'll often find that there are different model modems for different notebooks, for purely physical reasons.

So external modems have one distinct advantage over internal ones — portability. Not portability in the sense of being more convenient to carry around (obviously, the less you have to carry, the better), but portability between different notebooks (or even desktops). All notebooks have a standard nine pin serial port, and when you almost inevitably upgrade to a bigger/faster notebook in the future, you won't have to buy a new modem. The flip side of this is that by that time, you might want a faster modem too!

On the other hand, an internal modem leaves the serial port free for a mouse,

though most portables have a dedicated PS/2-style mouse port.

Most internal modems run at speeds up to 2400bps, while you can get the external variety in almost any speed available — up to 14,400bps. Fax modems are almost universally 9600bps, although some can only receive at half that speed. Whether this is important depends on your intended application — most people use fax modems mainly for sending, as received faxes are difficult to read, and gobble disk space that is all too scarce on portable computers.

And for the ultimate in portability, you can team up a portable modem with a hand-held cellular phone. There are several adapters available which can perform this magic with a wide variety of phones, such as the model recently released by NetComm — see 'New Connections' in this issue.

More recently, some notebooks have started to incorporate internal network interfaces, rather than requiring an external interface to be plugged into the parallel



## COVER STORY

### PORTABLE COMPUTING

port. Parallel ports weren't designed for this sort of speed, and prove to be a bottleneck to network throughput.

For casual use, say, downloading sales data from a sales rep's notebook at the end of the day, the speed may not be important. But if the notebook is to be used extensively in the office, for interactive work across the network, then you'll likely benefit from the extra speed of an internal network interface.

Also, as for modems, an internal network interface is more convenient than an external one, but you're stuck with the network topology built into the machine. At the moment, that means Ethernet — if you're a Token Ring or ArcNet shop, you'll have to use an external one. Even IBM has shunned Token Ring in favour of Ethernet in its new ThinkPad 300.

There's a third possibility, too, for network connectivity, at least for machines which have a mating docking station. These docking stations typically have two or three standard expansion slots, so you can use any network card you like,



*The lack of standard expansion slots doesn't mean you can't tie your notebook into the network when you're back at the office. Katron's pocket Ethernet adapter is available in both thin coax (pictured) and 10Base-T twisted pair versions, and just plugs into the parallel port. Drivers are included for Novell, LANtastic, and TCP/IP networks, and it includes diagnostic LEDs to aid fault finding. Recommended retail price is \$344, from Digital Solutions, (07) 883 1851.*

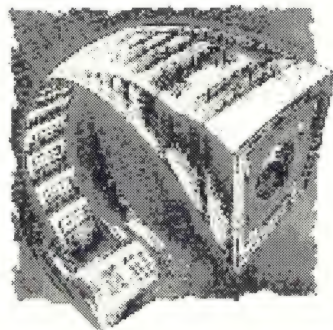
and leave it in the office with the docking station when you go out. You're not likely to need network connectivity outside the

office, so it's a good compromise.

Back in the days when all desktop PCs had 5.25-inch floppy drives, and laptops had 3.5-inch drives, those who used both found they needed a way to transfer files from one machine to the other. An extra drive for one machine or the other was one possibility, but a relatively expensive one. A more appealing solution for most people was a file transfer program, which connected the two machines together through their serial ports (and later, their parallel ports as well).

These programs, such as Traveling Software's LapLink (the latest version is called LapLink Pro) have remained popular despite standardisation on the 3.5-inch disk format for both laptops and desktops. One reason for this is that they make the transfer of large numbers of files, or large file, much simpler and faster than using floppies. LapLink also has many options that make keeping two sets of files up to date as simple as possible.

Another reason is the emergence of the



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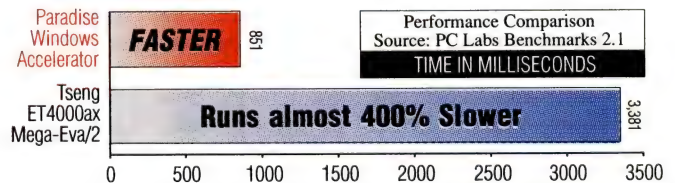
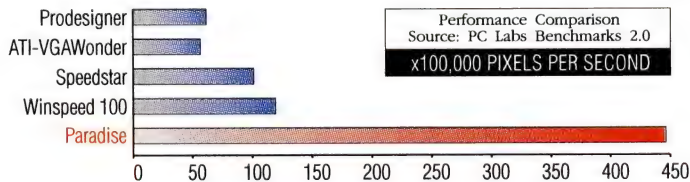
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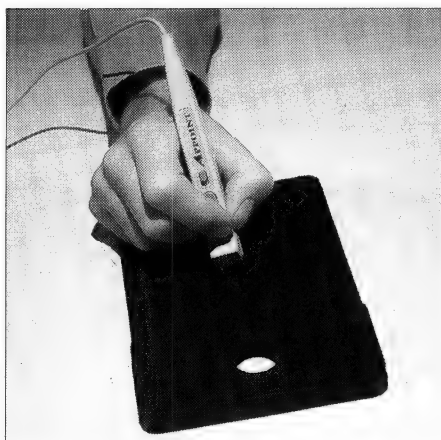


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## COVER STORY

### PORTABLE COMPUTING



*For Windows users, there are many more portable alternatives to the mouse. The Ap-point Mouse Pen is used like a pen, but is not very different in operation to a regular mouse, except that you can use it in more confined areas, or even use it on your leg. It's priced at \$175 from Software Express, (03) 663 6850.*

floppy-less portable. In the never-ending quest to minimise size and weight, some notebook designers have chosen to replace floppy drives with credit card-sized PCMCIA memory cards, or to eliminate them totally, leaving the hard disk as the only in-built mass storage device.

If you work in a networked environment, then adding a pocket network adapter to a notebook is a good way of transferring files to and from the portable, and gaining use of the network's services from the notebook. These are available from a variety of sources, and support most common network topologies, including Ethernet, Token Ring, and ArcNet, and most network operating systems, such as NetWare, LANTastic, and LAN manager.

Those who aren't already running a network, but find the idea of sharing your desktop machine's drives and printers with the notebook attractive, might be interested in Program Development Systems' laptop version of its Murrumbeena Network System (MNS). It comes as a bundle with two parallel port network adapters, a connecting cable (ordinary telephone wire), and software.

One unique feature of this system is

that the adapters, which plug into the computers' parallel ports, draw all their power from that port; there's no fiddling around with plug packs. It's a two-station network, with one machine (normally a desktop machine) operating as a non-dedicated server, and the other as a workstation. Access to files and printers on the server is transparent, as on any network, and it is compatible with other networks, so it can be used to connect a notebook to a network via a workstation that's already on the other network.

I tested an early beta version of the software, in conjunction with the first two network adapters to roll off the production line. My first problem was that the printer port on my IBM L40SX was located too close to the edge of the recessed panel on which it is mounted, preventing the network adapter being connected to the machine. I eventually managed to connect it by connecting it through two back-to-back gender benders. Once that was done, I encountered no problems in using the port with this machine, nor with the 386 desktop that acted as the server.

Not so with a Toshiba T1000SE laptop — the software refused to load at all. Toshiba parallel ports are somewhat non-standard, which is undoubtedly the cause of the problem, although this will likely have been fixed by the time you read this.

In the future, expect to see communications become increasingly transparent, as communications and computing hardware become more integrated. Today, with a notebook, a pocket modem, and a suitable cellular phone, you've got a complete portable office, and can stay in touch with the world from almost anywhere. Tomorrow,

row, expect to see all that built into the one unit. Cellular data networks are just starting to take off in some cities in the US.

These data networks allow an office network to extend to people in the field in real time, rather than having to wait for them to come into the office, or call up by modem. Cellular data is a marriage between the

cellular phone networks we're already using, and packet radio experiments that radio amateurs have been doing for years.

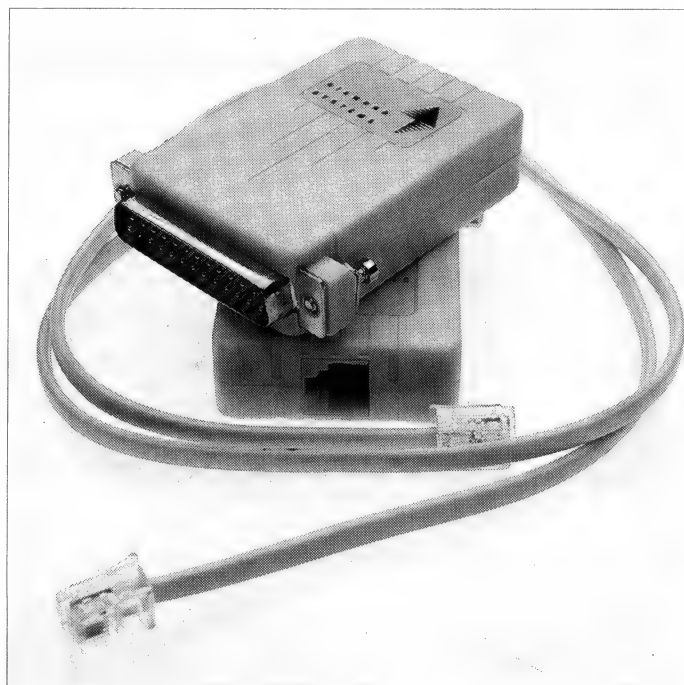
Some people see communications becoming the central function of computers. Mark Eppley, chairman of Traveling Software, the makers of LapLink, sees the technology evolving into a '... communications-centric paradigm, in which computers will be seen less as task-oriented tools and more as communications tools.

"The extended office will give rise to a new way of using computers, one that will allow users to have a computer device with them at all times. The emergence of the extended office will require the confluence of a number of technologies, not the least of which will deal with moving information from one place to another by a variety of channels, many of which are not commonly used today," he adds.

### Expansion potential

MODEMS AND NETWORK interfaces aren't the only accessories you might want

**Computers will be seen less as task-oriented tools and more as communications tools.**



*The Australian-designed Murrumbeena Network System is now available in a two-station version designed for laptop use. Connecting two IBM compatibles together using ordinary telephone cable, it provides most 'big network' features including file and printer sharing, through the parallel ports of the two machines. It's priced at \$675 for both nodes, including software, hardware, and cable, from Program Development Systems, (03) 563 3063.*





*Portable modems are nothing new, but here's one with a difference. The AMI FlashTalk runs at speeds of up to 2400bps, yet requires no external power. The supplied software provided MNP support — it's not quite as fast as hardware MNP support, but the convenience of the modem far outweighs that small disadvantage. Priced at \$299, it's available from AMI Computer Services, (02) 310 1970.*

to add on to a notebook, but they're two of the most common. There's frequently a need to use peripherals designed for desktop machines with a notebook.

Desktop expansion units, or docking stations, are becoming more and more popular, especially now that notebooks are as powerful as most desktop machines. You can have a single machine for use both in and out of the office, without the hassles of keeping files up to date on two different machines. Expansion units in their basic form, allow a conventional VGA video monitor and keyboard to be connected to the notebook, making it easier to use in an office environment.

True, you can connect an external monitor to any notebook, and a full-sized keyboard to most, but a docking station makes it a one-step operation. It also allows a couple of expansion cards, such as a network card or mainframe gateway, to be used with the notebook while it's in the office. You'll also find a couple of extra drive bays inside, for extra hard disk storage, or perhaps for a 5.25-inch floppy drive, or a CD-ROM drive.

With the rapid proliferation of SCSI devices, especially CD-ROM drives, SCSI ports are bound to start appearing on more and

more notebooks. Now that single chip SCSI solutions are available, there's not much real-estate penalty in providing a SCSI port. The most difficult thing for most designers will probably be finding room for the connector.

Anabelle Bits' SunRace range of notebooks all have an internal SCSI port — either a Future Domain compatible port, or an Adaptec-compatible SCSI-II port. The latter is particularly versatile, as you can use the CorelSCSI software to connect most any SCSI device you desire.

IBM's expansion unit for its ThinkPad machines has an internal SCSI adapter, so that SCSI devices can be used without taking up one of the two available Micro Channel card slots.

Because docking stations are relatively rare, and certainly far from portable, a lot of third-party devices have appeared which attach to the parallel port of virtually any laptop — the fastest

port that can be guaranteed to exist on any machine. Network adapters, hard disk drives, SCSI controllers, and tape drives, can all be had in forms that connect to the

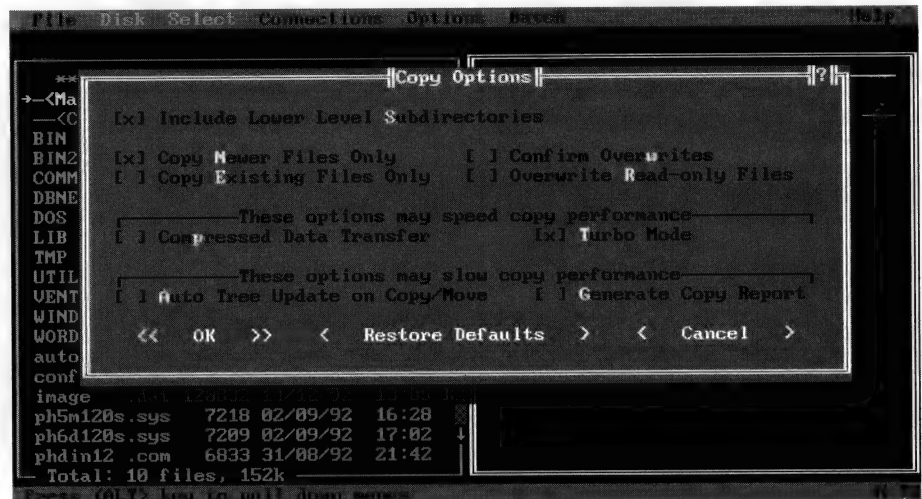
parallel port, as well as printers, of course.

You don't necessarily lose your printer port though, because many of these devices have a pass-through printer port, which allows you to plug your printer into the back of the other device, and use both at once. I doubt you can daisy-chain several of these devices one after the other and access them all — the software drivers are bound to conflict with one another.

Portable hard disks are ideal for older model laptops without an internal hard disk, or to supplement limited internal storage capacity. Portable hard disks are not only useful in conjunction with portable computers, but they can also serve as a substitute for a complete portable computer in some circumstances. People who regularly work in two locations, and have a desktop computer in each place of work, can use a portable hard disk to store their data files, carrying the disk drive between the two machines.

I tested a 120MB PHd portable hard disk, distributed by KT Technologies (03) 646 5755, and priced at \$1100. This unit draws its power from the computer's keyboard port, so you can't use it with notebooks that don't have a socket for an external keyboard. A 5-pin DIN piggy-back plug allows the drive to be plugged into the keyboard socket without having to forego the convenience of a keyboard! You can also plug it onto PS/2 style 6-pin mini-DIN sockets by using one of the adapters commonly available.

The parallel port does constrict the data transfer rate somewhat, but not too much.



*LapLink Pro is the latest file transfer program from Traveling Software, allowing machines with dissimilar drives (or even no drives at all) to transfer files between them, using either serial or parallel ports. It's also more convenient than floppies if you have a large number of files to transfer, and a wide range of copy options are available. It's distributed by PC Extras, (02) 319 2155, and carries a recommended retail price of \$260.*



## COVER STORY

### PORTABLE COMPUTING

I measured data transfer rates of 3.6MB per minute copying data between the PHd and the internal hard disk of my AVO 386 desktop, and with a 512KB SmartDrive disk cache, this rose to an effective 4MB per minute. My only complaint with the drive is that the cables supplied are a trifle too short for use with large tower cases, necessitating sitting the drive on the floor, rather than being able to place it on top.

Another solution to the space squeeze in notebooks is on-the-fly disk compression software, such as SuperStor or Stacker. Most everyday data is compressible to some extent, although the compressibility of data varies depending on the form of the data. Typical mixes of executable files and data files result in ratios of between 1.5:1 and 2:1, although databases tend to compress even better. Compression software doesn't give you something for nothing — it's merely making better use of the available space on your drive. It does slow down drive access somewhat, but for most people, it's a small price to pay for greatly increased storage capacity. And of course, if you really need a lot of storage, you can get an external hard disk and compress that as well.

A similar approach is the use of small 'brick' systems. These small machines are about the size of a medium-sized book, and pack as much power as any notebook. Rather than being completely integrated, with keyboard and screen all built in, they connect to ordinary desktop VGA monitors and keyboards.

Somebody who wants to work both at the office and at home, simply sets up a screen and keyboard at each location, and carries the 'brick' computer between them. You then have no worries about not having the right file in the right place, or of slight compatibility differences between two different computers. Oh yes, it's also cheaper than two complete computers!

While floppy disk drives were standard for a time on all notebooks and laptops, more and more manufacturers are abandoning them in the interests of saving size and weight. A hard disk can store far more

data in a smaller space, and they usually offer an external drive or a file transfer program such as LapLink for those occasions when you need to load software on the machine, or transfer data in or out.

There's a new technology waiting in the wings, to replace floppy drives in notebooks — PCMCIA cards. These credit card-sized cards already feature on almost all palmtops currently on the market, and can store up to 20MB on a card, with 60MB cards promised for release in the near future. Unfortunately, they're still expensive — \$300 for a 4MB card — and they're far from being standard equipment on desktops as well. There's a bit of life left in the floppy yet.

### Portable rodents

THERE'S NO DOUBT that graphical user interfaces are here to stay. While they took a while longer to catch on in the notebook



IBM's new ThinkPad range of notebooks includes a novel pointing device called a TrackPoint, which is buried in amongst the keyboard. The mouse cursor is moved by applying lateral pressure to the lever using the index finger or either hand, and the mouse buttons are located conveniently below the space bar. Pricing starts at \$3510 (excluding tax) for the ThinkPad 300 with a 25MHz 386SL processor, 4MB of RAM, mono LCD screen, and an 80MB hard drive. Also available is the ThinkPad 700 series, based on 486SLC processors, running at either 25- or 50MHz. From IBM, 13 2426.

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# Portable printers

IT'S ALL VERY well having a portable computer with a hard disk full of data — but you need to be able to communicate with others for that data to be of much use. That's the purpose of a modem, a fax and — after the display, the most basic communication device of all — a printer. Carrying a full-sized printer around with you makes as much sense as loading your desktop PC into the boot of the car everytime you go to see a client.

Back in the early days of PC-ing several manufacturers developed portable computers with a built-in printer — 'portable' if you were built like a sumo wrestler, that is. The weight wasn't the only disadvantage — these were all based on thermal technology and they had to use expensive, heat sensitive paper and the output wasn't all that readable. Not only that, but the output rapidly disappeared (even faster than a fax). While this might have been useful to those in secret service work, the feature didn't endear the printers to business users.

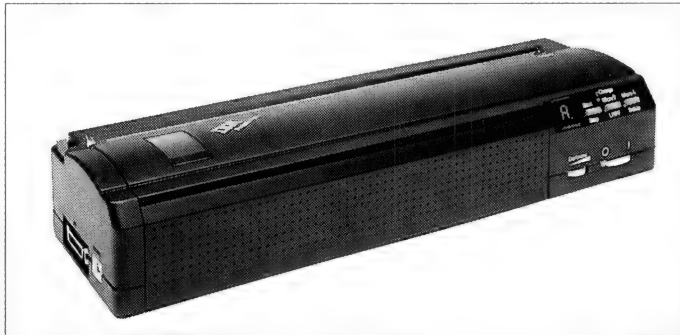
A few years back, Toshiba brought out its thermal transfer ExpressWriter — this technology transfers ink from a ribbon by melting it onto the paper. While the ExpressWriter wasn't the first thermal transfer printer, it was the first to enjoy a modicum of success — but that was more a flow on from the phenomenal success the Toshiba portables were enjoying than anything else. The ExpressWriter was slow and noisy, almost embarrassingly so for something so small. While there is still no such thing as a 'fast' portable printer — printing an A4 page of text per minute is fairly typical — they have gotten much quieter.

The first portable printer that could be described as 'popular' was Kodak's Diconix inkjet, which is still with us some three years after its release in both Mac and PC variations. On paper — pardon the pun — the Diconix, rated at 120 characters per second (cps), is reasonably fast, but like all other portable printers, the paper feed mechanism is quite slow so the rating doesn't mean much.

The print quality wouldn't be acceptable for office correspondence but it's fine for printing in the field. While the Diconix

is quite small, so is its print area: most printers can use over 200mm of an A4's 211mm width, this one only uses 180mm. It accepts continuous stationery — but the paper feed mechanism is rather poorly designed: the paper-in needs to be exactly aligned at right angles to the printer or every third or fourth sheet gets dragged around the platen. This is a real nuisance if you are using fan-fold paper and the printer is resting on the seat of your car, for example.

The first portable printer to enjoy runaway success was the baby BubbleJet from Canon. As many of them are being used because of their low-cost, very good quality output, than because of their portability — but, for the first time, those working from a 'portable office' don't have to suffer many compromises.



While the early BubbleJets had continual problems with the ink nozzles clogging, this has now been solved. Aside from the (almost) laser quality of the output, another big plus for the BubbleJet is that it can be recharged while being used — the Diconix can't be and the re-charge takes about 12 hours.

The 'baby' BubbleJets (there are also desktop models) opened a new niche: the 'personal' office printer. They are small — and quiet — enough to sit on a desktop. Buying these most-often makes more economic sense than buying 4ppm 'personal' laser printers.

Last June I reviewed a new entrant in the portable stakes, Citizen's PN48. It greatly impressed me at the time, but it never hit the market in any numbers. I assumed that the local distributor was unable to obtain enough stock to market it the way it deserved. Well, it seems the IBM marketers knew a good thing when

they saw it, too. The PN48 has re-surfaced as the IBM Portable Printer 5183 (and I'm assured there's no problem with stock).

The most noticeable thing about the printer is its size: 297 by 90 by 50mm — as I noted in June, that's smaller than an egg carton! The weight, 1.2kg, is about two-thirds that of the Kodak and Diconix. Technically, its most interesting feature is the thermal fusion method used to transfer the ink from the tiny ribbon cartridge to the page. The print mechanism is essentially a 48-pin dot matrix with the pins replaced by heating elements and the ink-impregnated ribbon replaced by one coated with a solid resin.

The 'pins' are ceramic heating elements and are arranged in two staggered, parallel rows — a 'zipper' configuration. As the ribbon moves across the head, appropriate pins are heated, melting the resin onto the paper. The temperature in the pins is so high — 160 degrees C — that the resin isn't just transferred to the paper, it's fused there. This gives quite a 'durable' image, superior to that from inkjets or thermal transfer printers.

Because of the zipper set up and the fact that the pins are only 0.062mm on a side — dot matrix pins are about half again as large — the printer can output up to 360 by 360dpi in both text and graphics mode. To the naked eye, the text output is about the same quality as that from a laser printer or BubbleJet, though the 'black' isn't as dark as the BubbleJet's.

When buying a portable printer, users think about speed and up-front cost. As noted above, the 'real' print speed of all the printers mentioned here is 'slow' and, ready to print, they all cost, on the street, about \$1000. But — they vary considerably in their on-going costs.

For a example, the cost of the ink for printing a 'quality' text page with the Diconix is about \$0.06 per page; with the BubbleJet, about \$0.15; and the 5183, around \$1.

So — to choose between the three, you'll need to work back from your priorities and work out the compromise that suits you between size, quality and on-going costs.

— Jake Kennedy



market than desktops, it's getting increasingly difficult to find decent non-Windows applications, so notebooks users are being forced into Windows whether they like it or not.

Trouble is, to use a GUI, you need some sort of pointing device, and the traditional mouse tends to take up more room than most people have available when they are travelling.

One of the first alternatives to appear was the mouse pen, which works in exactly the same way as a mouse, but is shaped (and held) like a pen. Trackballs are also a popular alternative, and are built into many notebooks nowadays, as standard equipment. Personally, I find trackballs a poor substitute for a mouse, but that's just my view.

An innovation is the TrackPoint, which appears in IBM's new ThinkPad range. This takes the form of a stubby little lever, located between the G, H, and B keys on the keyboard. You move the mouse around by applying pressure in the appropriate direction with your finger. The harder you push, the faster the cursor moves — it's quite easy to get used to.

### Future trends

I'VE ALREADY touched on some of the future developments that you can expect to see in portable computing over the next few years. Aside from the faster processors, higher-capacity mass storage, and smaller boxes that we've become used to right across the industry, there are a few other developments that you can expect to see in the near future.

I've already spoken of the increasing integration of computing and communications. Pen input is also an emerging technology, and with the arrival of Pen Windows, there's now a standard platform for software development in this environment. Pen computing won't replace keyboard input; it won't even come close. Most people can type much faster and more accurately than they can write by hand. What it will do will be to bring computers to applications that are currently performed manually. It'll be a niche market, but nonetheless, an important one.

**Pen  
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won't even  
come close.**

As production costs drop for colour screens, they will become much less of a luxury, and appear in more and more machines. PCMCIA cards won't totally replace floppy drives, there's just too big an installed base, and they're still far too expensive, but they will start to appear more and more frequently in applications where size and weight have to be minimised.

And as power consumption of components drops further, manufacturers will be able to opt for either longer battery life, or smaller and lighter machines. New battery technologies, such as NiMH batteries will help accelerate the process.

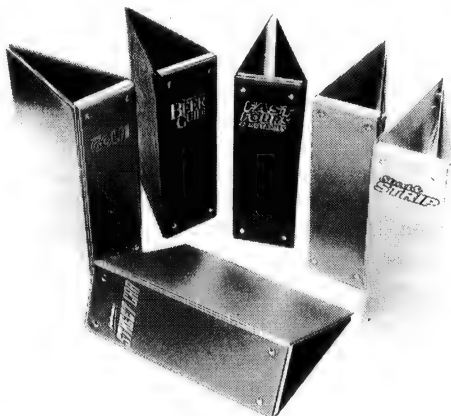
Will notebooks ever replace desktops? I think not, at least not completely. I expect hybrid solutions using docking stations to

become more commonplace, as more and more people find themselves working in more than one location.

But one thing's for sure — we haven't seen the end of the excitement in notebooks. Not by a long shot. □

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# WORDS, WORDS, WORDS

We saw in the December issue that text-based word processors are still by far the most effective. But – the vast array of features offered in their Windows-based cousins can't be beaten. Here, again, as Steve O'Brien found, price is certainly no guide to 'quality'.

WHEN MICROSOFT released Windows, they irreversibly melded word processing and desktop publishing. Macintosh users, smugly satisfied with their typesetting and graphics capabilities, previously had good reason to laugh at the contemptible endeavours of MS-DOS machines. It was easy enough for an IBM to send data to a PostScript printer — and to receive shapely Times Roman output in return — but a lack of display standards and procedures for the

internal handling of fonts and graphics resulted in every program which purported to be a desktop publisher needing to constantly reinvent the same old modules.

Windows bestowed upon the DOS world procedures that any appropriately written program could use to advantage. Windows handles the display of fonts and graphics, and can call on extensions such as Adobe Type Manager for the display of PostScript faces. Version 3.1 of Windows (the bug-fix we were made to pay for) automatically displays crisp TrueType characters.

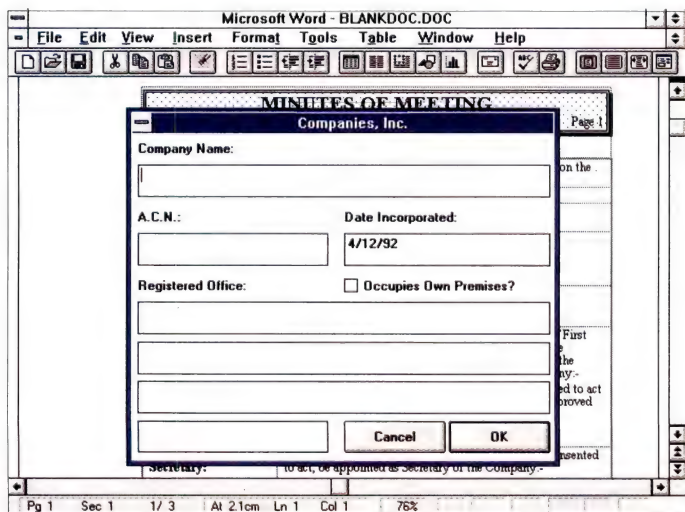
With Windows handling the tedious and the mundane, application developers discovered they had the resources to develop new and more sophisticated features. It is now very difficult to define the line that separates word processing from desktop publishing, if it exists at all.

Although the computing power needed to run any of these Windows word processors is significantly greater than that required by their DOS counterparts, the extraordinary benefits brought by this sacrifice makes it a small price to pay.

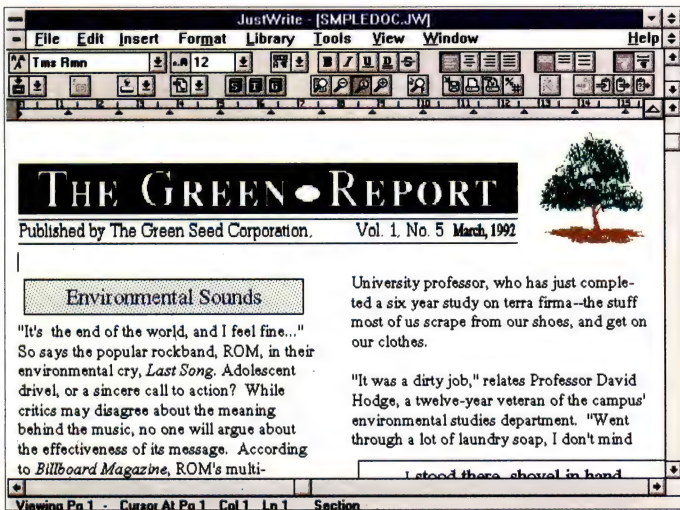
## Word for Windows

WORD FOR WINDOWS VERSION 2 IS a sizeable package. It installs to a minimum of nine megabytes, but be prepared to expend fifteen if you want the full gamut of features. The extra six megabytes gains you a large amount of clipart in the vector-based Windows Metafile (.wmf) format, the Microsoft Equation Editor, Microsoft Graph, and

*Word for Windows' extensive macro capabilities and easy table generation make it ideal for repetitive tasks.*







*JustWrite, for a very low price, has most of the capabilities of the high-end packages.*

which displays all text using Windows' single size system typeface. Without the need to perform the myriad calculations for true WYSIWYG, the word processor tears along at a speed pleasantly comparable to its DOS cousin.

The next best alternative to Draft is the Normal mode. This shows typefaces spaced and sized as they will finally appear, but it ignores headers, footers, and the other niceties that aren't that crucial to the grist of the document.

The last mode, Page Layout, is essentially an editable version of the print preview. Whilst it is the slowest, it is also the best for the often time-consuming proof and correct cycle.

Word for Windows has a feature that makes it unique amongst the Windows word processors. Hidden away under the Insert Object dialog box, is a small function called WordArt. This great applet comes with 19 unusual typefaces that instantly and easily arch upward, downwards, transform into buttons, contort, colour

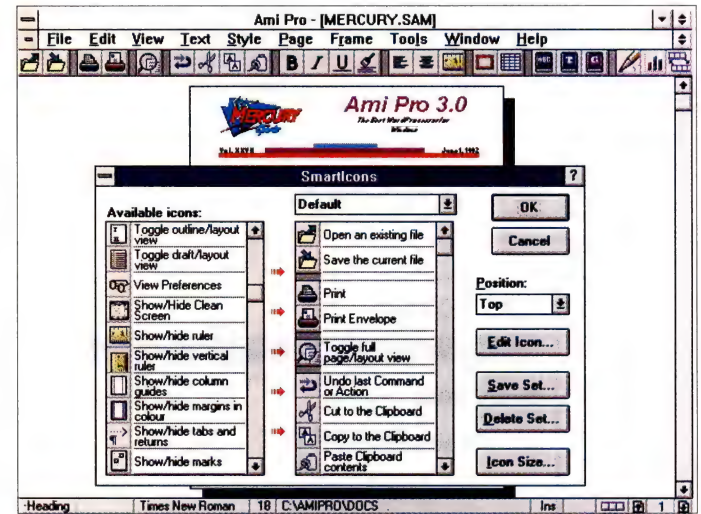
Microsoft Draw. The add-ons come supplied with many other Microsoft products, so you won't need to install them again if you are already running a package such as Excel.

Installation is a breeze. In an increasingly popular ploy designed to amuse bored executives, the program even demonstrates many of the features of Word for Windows while it is copying and decompressing the disks.

The first steps into Word are easy, but don't expect any advantage if you are already familiar with Word for DOS. A brief read of the thirty-page 'Getting Started' booklet will help most users over the larger hurdles, and the superb computer-based tutorial is a more than adequate salve for other problems.

When Microsoft introduced Word for DOS 3, it brought a swag of concepts new to personal computing. Word for Windows 2 similarly oversees the introduction of many new ideas to Windows, and several of these have since flowed through to the other programs reviewed here. The most copied and useful of these, the now ubiquitous Toolbar, provides shortcuts to the program's strongest functions. It comfortably displays some 23 buttons, but it is possible to squeeze in more if desired.

All of these features and functions take their toll. Word runs dead slow in its minimum configuration, a 2MB 80286. A number of display modes help to alleviate this problem. The fastest is Draft,



*You wanted icons? You got icons! Ami's SmartIcons editor contains over one hundred of them.*

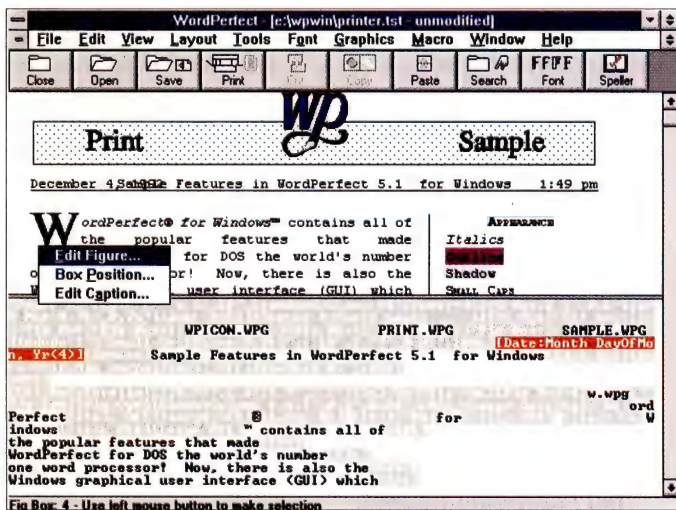
and curve, and then save as a metafile object for instant dropping into any document. This almost hidden feature has received scant mention elsewhere, but is deceptively powerful.

With the QuickBasic based macro language (dialog editor and program debugger inclusive), and the add-ons for graphing, drawing, word arting and equationing, Word for Windows 2 is far more than just a word processor. It is also delightfully easy to learn, features the best dialog boxes in the business, and has a brilliantly simple table editor that puts the others to shame. Of the gripes, there aren't many. The macro language is a little bit buggy — especially when working with headers and footers; the grammar checker is dismal (see my comparison of grammar checkers which follows in this issue); and the on-line help is not as helpful as an on-line help should be.

All in all, Word for Windows genuinely deserves its position as one of the premier Windows word processors available today.

**Word for Windows 2, \$735.**

*WordPerfect still has many hang-overs from the DOS version. Not least amongst these is the old 'reveal codes'.*



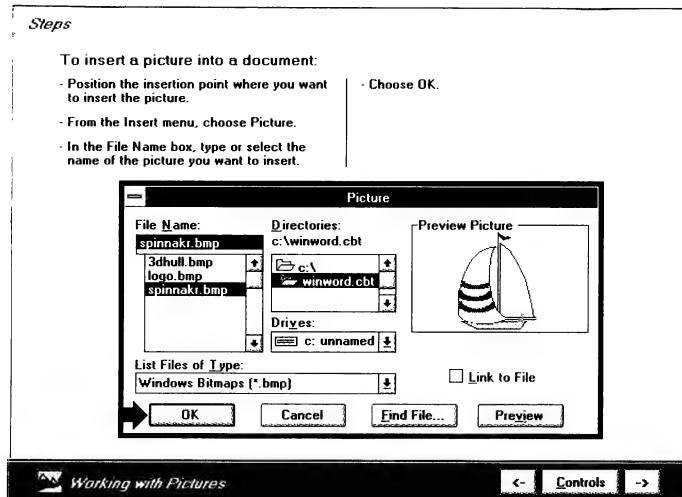


#### JustWrite

WHEN JUSTWRITE (VERSION 2) arrived, I put it through the standard tests: that is, I loaded it up, ran it for a few weeks as my only word processor, knocked out a few articles, and had a fun time hunting down its best and worst. My most impressive discovery was not the first (the wonderful way it just seemed to fit), nor the second (an ease of use that belies its power), nor even the third (a way of doing things that the others really should take notes on). The single most impressive aspect of this package is its price. If software this good can go through the entire distribution cycle and still hit the stores with a price of just over a hundred dollars (the introductory price), then software piracy just shouldn't exist. Even its RRP still represents remarkable value for money.

Call me an idealist if you will, and I am aware that the completely reprehensible wouldn't pay ten cents for their most useful and used application, but JustWrite is a very, very, good deal.

Amongst its numerous features, it happily handles the usual array of graphics importing, comes with a 660,000-word thesaurus, a dictionary (albeit American — it's one major let-down), and an excellent grammar checker. It will, bless its soul, automatically load the last file saved — or a specified default document — and will autosave every so many minutes if you so desire. The Toolbar (I told you it was ubiquitous) can display up to four lines of buttons at once, and it is easily customisable and completely flexible, being able to even display lists of fonts, documents and styles.



**Memory gone blank? Word's computer based training contains some great refresher courses.**

JustWrite's style library is where this processor really departs from the norm — for the better. Libraries contain six categories, all stored in the one file. The Style category handles paragraph and character formatting; the Section category takes care of column layouts, page numbering and outline sequences; and the Document category is used for margins, default tab stops, and hyphenation zones. The other three categories take care of graphics, text blocks (which may also contain graphics), and table formats.

Despite having six categories in possibly a multitude of libraries to worry about, the maintenance and control of them is a breeze. The library browser lets you open up any library file and step through its contents. If you want to look at the Style category, then the browser represents the text attributes and formatting through a series of icons equivalent to those that appear on the Toolbar. Tab stops show as part of a ruler at the bottom of the display

window. The other categories do their best to display a representation of the formatting or the graphic in a resizable preview window.

The ability to store artwork with multiple word descriptions, rather than just cryptic eight-letter filenames, is a tremendous boon for businesses wanting to keep track of their clipart.

JustWrite lacks a macro language, but it handles mail merging from dBase, Paradox, and Q&A databases. Time, date, and name stamps, automatic index and table of contents generation, and many other features make JustWrite the ideal tool for anyone with a low budget, be they in the home, school, or office.

**JustWrite Version 2.0, \$199 (the introductory offer could still be available — ask).**

#### Ami Pro

IF ANY PROGRAM IS GOING TO knock Word for Windows off its pedestal, it's Ami Pro 3. Originally produced by Samna as Samna Word, Lotus grabbed the technology, updated it, repackaged it, and called it Ami. (The Samna heritage is reflected still in the .sam file extensions.)

Ami Pro goes light years beyond its predecessor. This package is less word processor, and more way of life. From its over one hundred icons, to its flat file database; to its truly integrated charting, drawing and equation editing sub programs; and its voluminous and professional macro language and beautifully designed dialog editor and debugger — this is one incredible program. It also has a decent grammar checker, contains the Macquarie dictionary and thesaurus, and supports for work-groups and revision marking.

Mind you, with a feature set as lengthy as this one, don't expect to have it tamed for at least a few months. Even then, you'd better be prepared to spend a lot of that time sitting under a rock on a lonely mountain with only your laptop for company.

So what is it like to use this Rolls-Royce of word machines? Well, as with any decently designed Windows package, it is not difficult to start it up and just tap out a letter. Head up to File and down to Print and you have it. Don't let the instantly disappearing 'printing' dialog box fool you either. The Ami Print spooling program handles that task in the background without difficulty. Even when printing to a BubbleJet, where the standard Print Manager falls to pieces, Ami Print trundles along at full speed. You can even jump into DOS and hone your keyboard skills on a couple of computer games — it will still chug merrily away.

The interface to Ami Pro was designed to provide instant access to as many key features as possible. To this end, style sheets, fonts, and font sizes are always immediately available as a list that springs up from the bottom of the screen. The Toolbar (there it is again — this time called SmartIcons) has some ten different strips of 24 icons, each customised for various tasks. The separately available Macro Developer's Kit adds another couple of strips, and several extra commands to the menus.

Also of note, and welcome relief, is the capability to clear up the clutter with the Clean Screen mode. This reduces the palettes (SmartIcons can float anywhere on screen), the menus, rulers and other paraphernalia to a single icon that waits unobtrusively in the lower right hand corner. All the menus are still available, but only if you hold down Alt and press the appropriate menu key. One click on that lone icon, and the computer springs back to life, unfurling menus, painting palettes, and dropping down scroll bars.

Ami Pro is potent, powerful stuff. It is difficult to see how anyone's needs could not be somehow addressed by this magnus opus of a package, and there is certainly no shortage of mountains.

**Ami Pro version 3.0, \$695.**



## WordPerfect

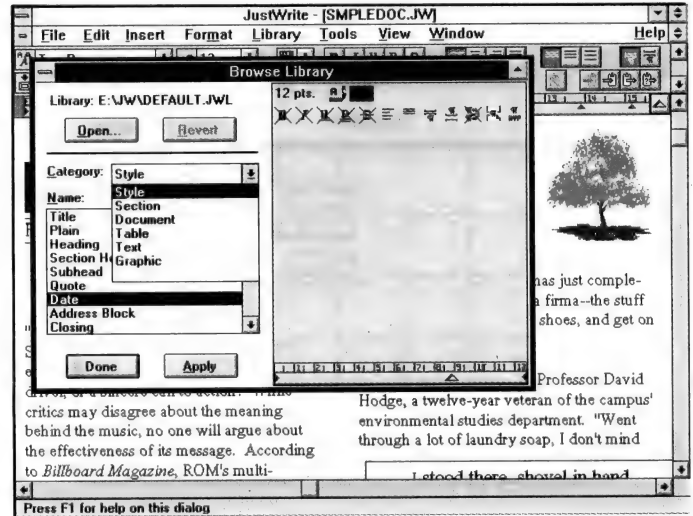
WORDPERFECT CORPORATION HAS an image problem. Its DOS word processor, hailing from a mainframe background, uses some horrendously awkward key combinations that are completely non-standard. This is not their fault, but they did choose to blow their one chance of starting afresh, with a clean slate and pre-defined Windows interface.

Two choices are offered when installing WordPerfect for Windows; you can use either the DOS WordPerfect keyboard conventions (they're 'conventions'?) or the standard Windows defaults. (Both Microsoft Word and Ami Pro do the same, even offering special tutorials for those upgrading from WordPerfect.)

WordPerfect for Windows also prefers its own 'sculptured' type of dialog box — a peculiar beast that creates boxes with smaller than standard buttons and menus that pull-down or pop-up all over the place. Although these are optional, they are also the default so most users will naturally use them.

User confusion is increased by WordPerfect's installing its own printer drivers. These only recognise fonts actually hardwired into the printer. All the wonderful TrueType fonts that Windows freely bestowed upon the user become completely inaccessible. While there is a way to return to the standard Windows printer driver, the procedure is not an obvious one.

For the diehard DOS WordPerfect users, this non-Windows Windows program is great. WordPerfect probably wanted to give them the smoothest possible upgrade path, with as little inherent stress as possible. What they end up with is WordPerfect for DOS with a prettier interface. But what about the ethos of Windows, the idea that applications look and behave in a fashion similar enough to



*The library browser in JustWrite is perfect for keeping track of styles and graphic objects.*

promote the ready migration from one to the other?

WordPerfect for Windows comes with its own File Manager. This replacement for the Program Manager is optimised for WordPerfect file management, and the option exists for users to use this as their only shell into and out of Windows. When WordPerfect for DOS users switch to Windows, they need never see a standard Windows file list, dialog box or font list — the only concessions are a couple

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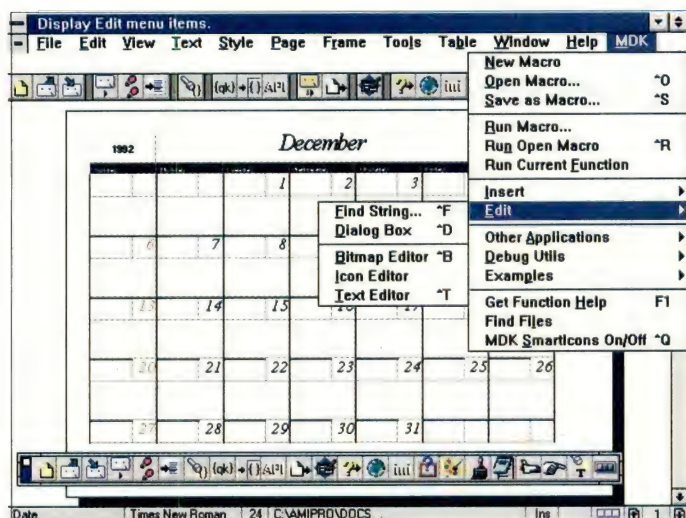
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## REVIEW

### WORD PROCESSORS



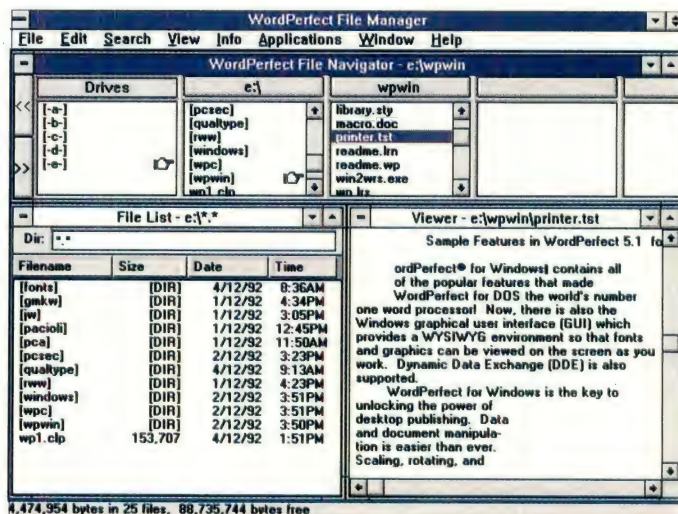
*For developing macros, you can't beat Ami Pro. It will even compile them to protect your procedures for distribution.*

of meagre scroll bars and a title bar at the top. Will WordPerfect users ever feel confident enough to stretch their wings and really discover the wonderful world of Windows computing? If they do, then unfamiliar territory will constantly hamper their efforts.

Those who choose to use WordPerfect for Windows will find that it satisfies most of their requirements. It comes with the Macquarie dictionary and thesaurus, and does most everything the rest do.

However, the greatest feature of Windows is the ease with which one can jump from application to application, confident in the knowledge that where one lands will always be familiar, solid ground. WordPerfect Corp. have chosen to go in a different direction. Once you follow their path, there is no guarantee that turning back will be easy.

**WordPerfect 5.1, \$715.**



*In redemption for its many faults, WordPerfect for Windows comes with an excellent file manager.*

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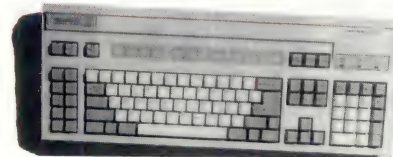
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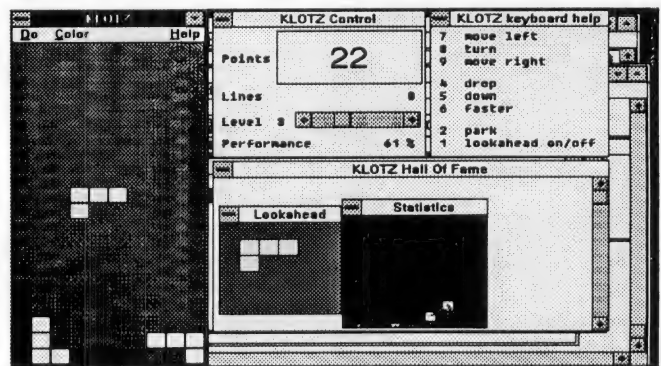


# BUDGETWARE WINDOWS GAME PACK #1

Budgetware is pleased to announce the release of Budgetware's Windows Game Pack #1. Containing 39 games for use with Windows 3.0 and higher, this collection will keep you amused for hours on end, but will definitely not increase your productivity. We have selected the best available public domain and shareware games designed to run under Microsoft Windows and placed them together in this multi disk set. Each program resides in its own sub directory, so you can just place the disk in your drive, load up File Manager, and select the game you wish to play. All this for only \$39, only one dollar per game!

Games on the multi disk set include Checkers, for one or two players, Hop, an interesting strategy game, Mines, another challenging logic game, Pipe Dream, a windows clone of Main Break,

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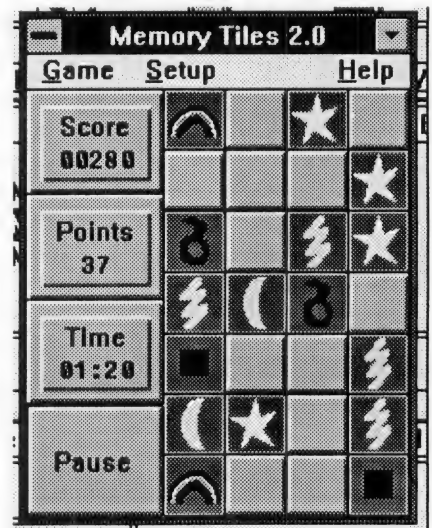
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# BRING ON THE CLONES!

**Intel's Pentium chip will start appearing in PCs around the middle of this year. Stewart Fist tells why it's such a significant release . . .**

**Y**OU'VE GOT TO feel sorry for Intel. They are one of the world's richest and most influential companies, but they constantly get rained on from all sides. Such is the price of success. There's about half-a-dozen other chip manufacturers actively cloning their 486 microprocessor family and often making better, faster and cheaper chips than Intel.

The real irony is that, now it is possible to computerise the 'reverse engineering' process — so their competitors are probably using Intel-based PCs to duplicate the new Intel chips even faster. Where they may have had a few years head-start on rivals in the days of the old 286 and 386, this 'period of exclusivity' is now down to six months or less. Which is why they seem to be frantically churning out new chips every six months or so — it's the only way to keep ahead of the rabble.

Intel announced details of the new 586 chip at a Stanford University (California) microprocessor conference in August 1992, and they are currently supplying some engineering samples to personal computer manufacturers although the chip isn't due for full release until early 1993. They didn't call it a '586' of course — or an i586. Intel discovered over the last few years that it is difficult to patent a number, so they re-named the chip internally 'P5' and externally the 'Pentium'. (What's the bet it still gets called the '586'?)

What Intel revealed at the conference was a pretty full description of the chip's architecture, and since this (or a clone) is likely to be the engine that drives your next PC, it is worth taking a quick look.

## Superscalar

THE P5 USES A superscalar architecture with a five-stage pipeline (see the figure on this page) integer unit, with two subsections in parallel. Superscalar is a form of pseudo-parallel processing-chip architecture which all of the major RISC chip designers (excepts MIPS) currently see as the way of the future.

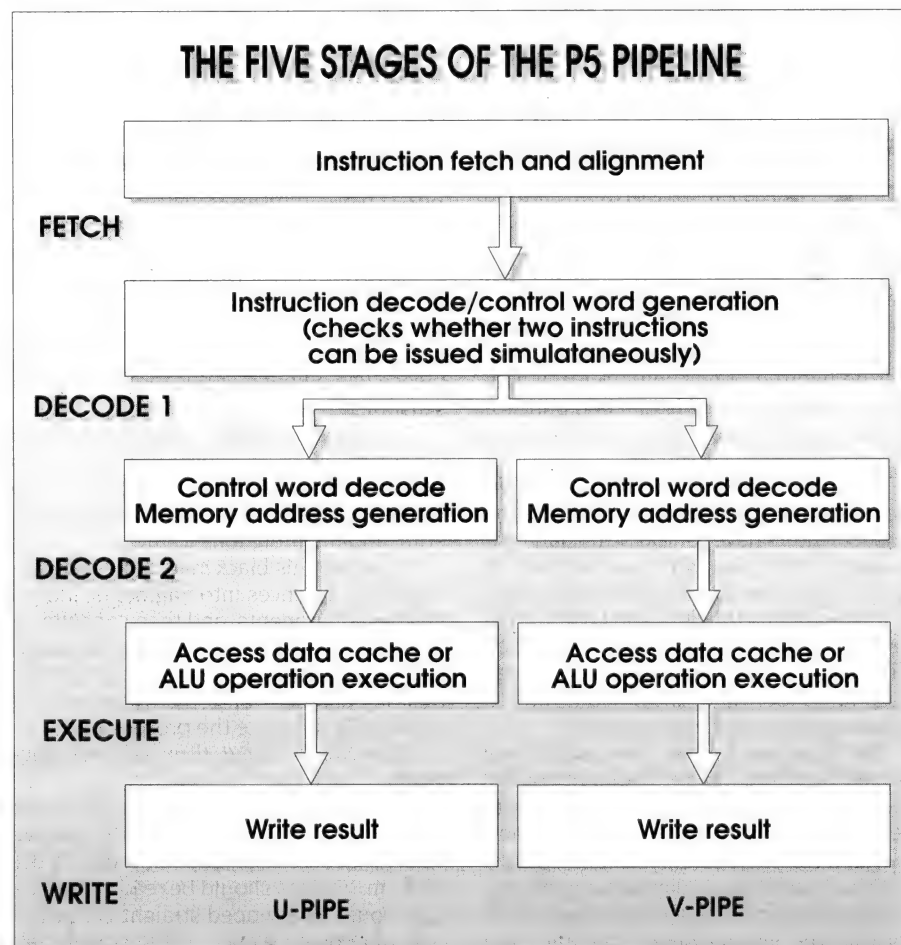
Superscalar sends two or more instructions through the processor at once (but slightly staggered in time) while pipelining is a technique used in CPUs to improve performance by moving multiple instructions through the system simultaneously. While the processor is executing the first instruction, other instructions and data are pre-fetched from memory to ensure that the CPU is never idle.

With even simple pipelining the CPU can generate the address of the next memory transfer before the current transfer is complete. But this five-stage technique coupled with the superscalar parallelism of the two pipes in the chip will allow the P5 to process five instructions at once. Intel

claim a 50 per cent performance increase over the 486, since the data-access time of the chips can be almost as long as the processor-execution cycle.

The P5's two 'execution' pipes are referred to as the U-pipe and the V-pipe. Both can execute instructions simultaneously in some circumstances (when the instructions are simple, and the destinations of the results are quite separate from each other). The problem here is that it is easy for these two parallel independent activities to come into conflict unless they are strictly policed, so when the necessary conditions are not met, only the U-pipe is permitted to operate.

*Continued on page 69.*



*The P5's two 'execution' pipes — the U-pipe and the V-pipe — can both execute instructions simultaneously when the instructions are simple, and the destinations of the results are quite separate. The two parallel, but independent activities are strictly policed — when there is a possibility of a conflict, only the U-pipe is permitted to operate.*



# CORRECT GRAMMAR

**Stephen O'Brien has put five grammar checkers to the test — and decided you should never trust a computer.**

---

**W**ILLIAM STRUNK JR. was a fearsome old man. His cry, 'Omit Needless Words!', struck terror into the heart of many a student who attended Cornell in the twenties. Back then E.B. White was just another student. It wasn't until much later that he had the opportunity to recall with joyous reverence the wisdom and philosophy of a man whose command of the English language was legendary.

Those familiar with Strunk's book, *The Elements of Style*, would understand the respect writers have for the Strunkian way. It was this book that White studied at Cornell, a study dramatically reinforced by Will Strunk pounding the desk and crying, 'Rule Seventeen! Omit Needless Words!' (In fact, Strunk omitted so many words, his lectures often ran under time. His solution was to repeat every sentence three times!)

*The Elements of Style*, later extensively revised by White, sold millions of copies. The 'little book', as it was then known, clearly defined the English language and provided common guidelines for its usage.

Strunk and White's days are, regrettably, numbered. Computerised grammar checkers rule the writing desks, and they are veritable bloodhounds. Most can sniff out a clumsy construction or agile alliteration from at least one hundred ems.

The grammar checkers and style augmenters below are the leaders of the pack. Before we test their mettle, however, it is

vital to understand that they can only improve your writing by flagging possible structural problems. Despite contrary claims, if you are a rotten writer, then a rotten writer you shall remain, albeit with smoother prose. If you are a superb writer, then you would be foolish to trust a grammar checker, they severely cramp style.

*Rule No 1 for Better Writing: Always proofread your writing to see if you any words out.*

## **RightWriter 5.0 for Windows**

RIGHTWRITER MAKES many claims on its packaging. Among these is the brash statement (given apparent credibility by two accompanying graphs), that, whilst it will flag more errors in a given document than comparable products, it doesn't flag as many false errors. Swallow this if you will, but please use a liberal application of sodium seasoning.

The manual defines RightWriter as an aid for business and technical writers. Its rule classes and analytical routines help written communication attain a lean, powerful, and unambiguous form.

To weave this black magic, the program smashes sentences into fragments, identifies the components, and then consults an expert system on alternative ways of patching it all up again. (The technical term for this is 'parsing', and the program can graphically illustrate the process.)

*Rule No. 2: About them sentence fragments.*

Weak phrasing has killed off many a fine passage, and the biggest culprit is passive voice. If George Bush had howled from the podium, 'my lips should be read', then history would have zipped straight past without a backward glance. If Big Gough had puffed his chest and proclaimed, '... the Governor General will not be saved by any known thing', then who knows what would have happened to his career as a Very Important Person and happily retired Statesman?

RightWriter grabs passive voice by the throat, and shakes the participles out of it. With Interactive Editing, you can watch it do this on screen, or you can print and peruse fully marked-up copy later. The latter feature is great if you tend to write by work-group — a creature once known as a 'committee'.

Interactive Editing — if you are unsure of English, RightWriter, or yourself — is by far the easiest method. Unlike the others, RightWriter can flag multiple errors in the one sentence, marking them with tiny, superscripted numbers. On particularly purple prose it can tally up as many as six of these — each one taking slices out of the writer's ego.

Installing the software is as simple as it comes: that is, on two 3.5-inch or one 5.25-inch disks. The software creates a program group with icons that add RightWriter macros to Ami Pro, Word, and WordPerfect, making it easy to run the checker from within these word processors.

Like the other grammar checkers, RightWriter is highly customisable. There are nine built-in writing styles, but if these aren't suitable, then it's a cinch to change rules or, indeed, to add new styles altogether.

*Rule No 3: Try to not ever split infinitives — or hairs.*

RightWriter claims to apply more than 6500 rules of good writing to whatever you care to feed it. I must admit, I wasn't aware that 6500 rules existed! Strunk and White have drawn the line at two or three hundred, and they readily concede: 'writing is an act of faith, not a trick of grammar.' Despite this, RightWriter for Windows remains one of the premier grammar checkers available. It is fast, flexible and coherent, and that should be enough for anyone.

**RightWriter 5 for Windows \$135; RightWriter 4 for DOS \$135, Ozzie Discount Software (03) 521 2222, fax (03) 510 1485.**



## Grammatik 5

THE POET ROBERT GRAVES once wrote an excellent reference book for writers. Called *The Reader Over Your Shoulder*, its premise was for writers to maintain an image or feeling as they wrote of there being an interested and educated reader standing just behind them. (I'm not sure what happened to mine; I think George has gone off to find some more interesting shoulders over which to peer.)

Robert Graves' idea was for the writer to maintain a concrete image of a single critic, not an abstract notion of The Audience. If this is firmly implanted, then sentences suddenly become clearer, the writer more concise, and first drafts turn into fourth drafts, with missed deadlines but a dim memory.

If RightWriter 5 is for the businessman or student, then Grammatik 5 is for the artist. It will stand behind you, screaming, cursing and pummelling your phrases into shape. And be warned — don't question its decisions! Grammatik 5 comes with a huge computerised reference that draws upon such respected works as *Longman Guide To English Usage*, *The Complete Plain Words* by Sir Ernest Gowers, *A Dictionary of Modern English Usage* by H.W. Fowler, *Practical English Usage* by Michael Swan and *Usage and Abuse* by Eric Partridge.

Grammatik 5 is the perfect Reader Over Your Shoulder. A reader with several diplomas, a doctorate or two, the sum knowledge of English Literature, and a photographic memory thrown in for good measure.

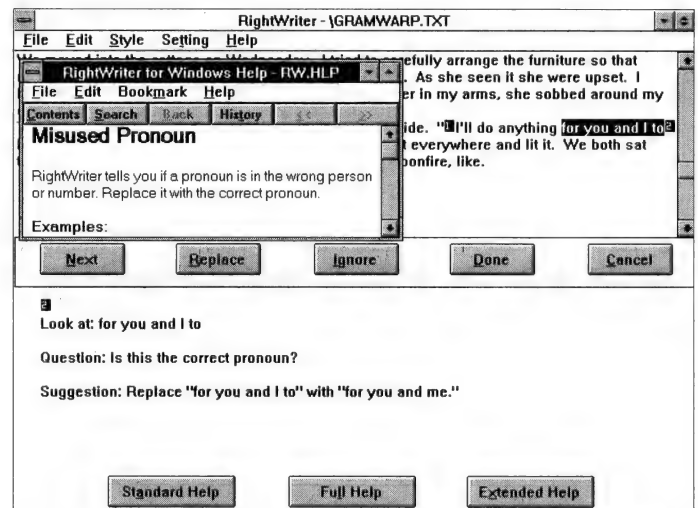
Ten styles come predefined with Grammatik 5, but it is in no way limited to these. Besides toggling various rules on and off, Grammatik allows the user to create their own style rules. This is a fantastic feature

*RightWriter 5's help system is extensive and context sensitive. Although not shown here, the program will also display an extensive summary of the document's statistics and general suggestions for improvement.*

for companies wanting to maintain consistency across their entire correspondence. For example, say the ANZ Banking Group wanted to ensure their name was spelt in full on all official correspondence. Management could easily achieve this by creating a special rule that trapped all instances of ANZ. If the writer desires and enjoys his job, then it had better be fixed, pronto! This is simplistic, but the possibilities are numerous, and the manual details many more complex cases.

**Rule No 4: Don't use no double negatives.**

Morphology is a tricky linguistic science. *The Shorter Oxford* identifies it as: 'that branch of grammar which is concerned with inflection and word formation.' Grammatik defines it as: 'the science of identifying words accurately by the roots (morphemes).' Well, the long and the short of it is that Grammatik uses a unique module called Mor-proof that can zoom in on misplaced homonyms.



Grammatik makes quite a deal of this, but, in practice, it misfires too often. If your knot in the habit of misusing you're homonyms, then it wood be maw a hindrance than a help.

Anyone and everyone can benefit from the incredibly fine sifting process Grammatik goes through. Its button layout makes it a little slower to work with than RightWriter, but it has 1,500,000 users out there, and they must be reasonably happy. There is only one gripe, and that is that the editing windows only ever load two or three of the surrounding sentences, making it difficult to correct anything glossed over earlier.

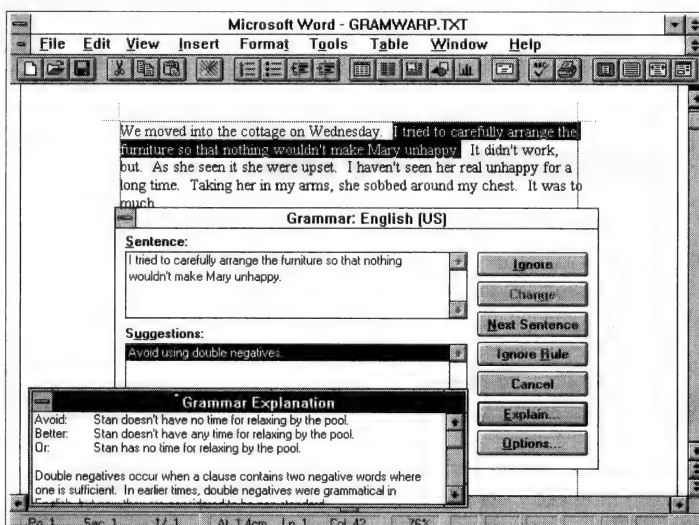
Besides this minor point, Grammatik is extremely good, and could easily become your trusted sidekick, your Reader Over Your Shoulder. Poor Mr. Graves must be turning in his.

**Grammatik 5, \$199 from Logo Computer Centre (02) 905 1844, fax (02) 905 6408.**

## Style augmenters

RIGHTWRITER AND Grammatik might be the heavyweights of the grammar checker world, but they certainly can't afford to sit around on their laurels. The major word processors are hot on their heels with the value-added bundling of some very good style augmenters. Many of these, in line with the 'if you can't beat them, then join them' philosophy, are simply earlier versions of the biggies. Others are independently developed checkers that found it a struggle to survive on their own.

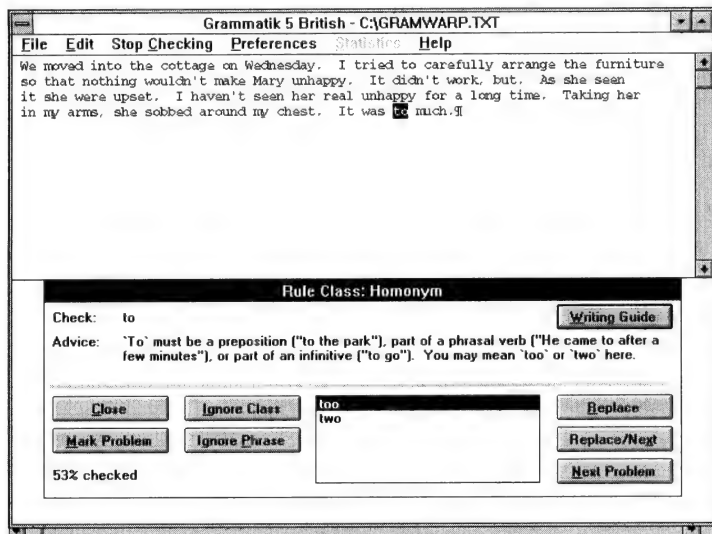
The fact that they are packaged with another product should not reflect detrimentally. Market strength is measured in dollar terms, and the best product in the world can fall flat on its face if it doesn't have sufficient promotional power prop-



*The Word for Windows 2 grammar checker was the least sophisticated in its algorithms. In its favour is a good reference window, but even that is too small to read with convenience.*



## COMPARISON GRAMMAR CHECKERS



**Only Grammatik 5 and RightWriter rang alarm bells over the misused 'to' in the sample document.**

were incorrect in several instances, and quite often they missed errors blindly obvious to our sense of language. Unfortunately, without the space for a blow by blow analysis, judging them this way is a bit like throwing the words against a wall to measure how far they bounce back.

'We moved into the cottage on Wednesday. I tried to carefully arrange the furniture so that nothing wouldn't make Mary unhappy. It didn't work, but. As she seen it she were upset. I haven't seen her real unhappy for a long time. Taking her in my arms, she sobbed around my chest. It was too much.

'Then, somewhere inside me, a bell rung. I took her outside. 'I'll do anything for you and I to be happy,' I cried. And so I got some petrol, splashing it everywhere and lit it. We both sat their watching the house burnt, and enjoyed it. It was a bonfire, like.'

So how does one gauge a grammar checker? It is not a simple matter. Their task is to smooth the written word, but words on a page flow. As with shooting the rapids, obstructions often make for the most interesting progress.

Word for Windows found just five errors, and these were certainly not the major ones. Microsoft is fabled for not getting its products right until version 3 — Windows, DOS, and Word for DOS bear witness to this. If you want a decent grammar checker built-in, then you could be in for just a little wait.

Ami Pro fared considerably better. It nabbed some ten errors, but two of these were more the nature of warnings, not indictments. The difference between the Word version of the CorrecText System and the Ami Pro version is remarkable.

ping it up. Besides, what is wrong with hitching your wagon to a star?

**Rule No 5: Don't write run-on sentences they are too hard to read.**

Ami Pro's grammar checker is the brightest in the sky. The choice of layout and the intelligent use of colour in its interface makes it both efficient and easy. There are eight writing styles to choose from, and it is a simple task to customise and save new ones. Rather than having to jump to the help system to find further information on a particular error, Ami Pro provides it all, replete with examples, in an immediately accessible window that remains on screen at all times. If it can, it will display a corrected sentence with the original just below for quick reference. All errors and problem areas show up in red, with the rest of the sentence in blue. This high contrast makes for high visibility and quick decisions.

The Ami Pro grammar checker, known as the CorrecText Grammar Correction System, hails from book publishers Houghton Mifflin. In a coup that would have dazzled Frederick Forsyth, Houghton Mifflin have envied their software into the Microsoft camp as well.

Word for Windows 2 proudly sports the CorrecText system in an older incarnation; due, no doubt, to the earlier release of Version 2 of Word for Windows.

The checker is still very good, but it has difficulty in picking up the same range of errors. Whereas this earlier version finds the obvious mechanical faults as effortlessly as its successor, it is the intangible, the awkward turn of phrase or tortured syntax, that slips through with beguiling ease.

JustWrite, a delightfully small word processor (5 megabytes as compared to around 15 for the rest), would have an excuse for not including a grammar checker — after all, WordPerfect, even with its hun-

dreds of millions of dollars of revenue, didn't bother. This bouncing baby of the bunch comes bundled with a copy of a hybrid — that's hybrid, not rabid — DOS and Windows RightWriter. It appears to be RightWriter 4 spiffed up to operate within a Windows interface, and, more importantly, seamlessly from within JustWrite.

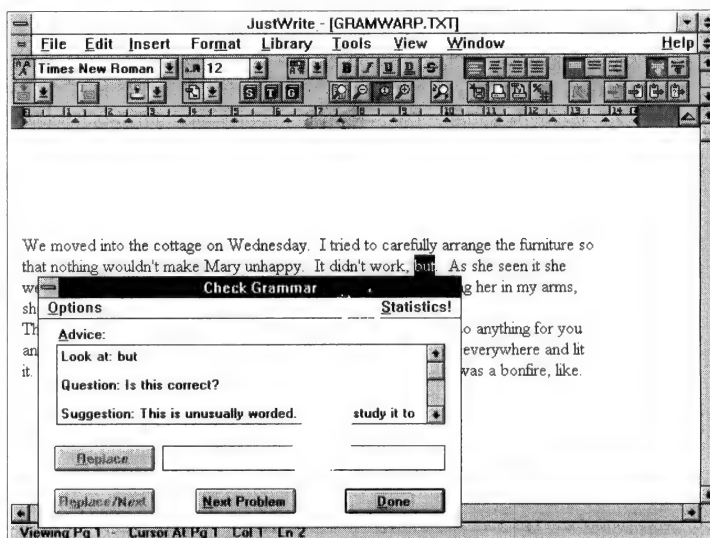
The JustWrite checker takes the bare bones approach: there are no recondite (a word, according to Thewol, that belongs to the same club as 'Why is abbreviation such a long word?') style guides, or exhaustive on-line references. If it thinks it's wrong, then it will tell you. You are then left to your own devices, be they Strunk and White or a stiff drink.

**Rule No 6: Correct spelling is essential.**

**Lotus Ami Pro 3, \$695; Microsoft Word for Windows 2, \$735; Symantec JustWrite 2, \$119. The prices quoted with this article are all recommended retail prices — street prices will often be significantly lower.**

### The real world

THE GRAMMAR fodder below was supplied by Tony O'Brien, Head of Language Department, Elizabeth College, Hobart. It was fed to the five grammar checkers, each with all possible rules turned on. The results, whilst being somewhat surprising, are not necessarily a true indication of the quality of these programs. All the checkers



**JustWrite 2 wins big points for value for money. Although spartan in design, the checker is very good and extremely thorough.**

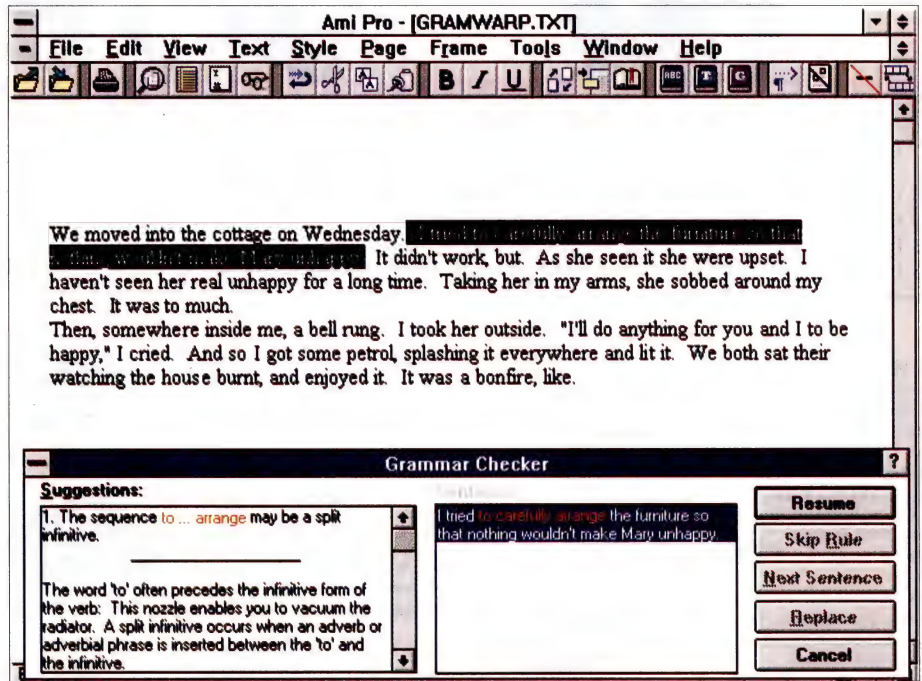


JustWrite was the dark horse that came through in the end. It showed a lot of the pedigree that has gone into making RightWriter 5 so complete. Indeed, they flagged exactly the same number and type of errors, eleven in all; the only difference between them being that RightWriter 5 did its job with a little more panache. Its on-line reference also makes it worth the money.

Grammatik grabbed eight, but these weren't just plucked from the air. If Word for Windows and Ami Pro had the wrong end of the stick, then Grammatik was ferociously hanging on to the other end.

*Rule No 7: When dangling, watch your participles.*

If there is a moral to be had from these grammar checkers, it is that you should never trust a computer. Sure enough, they will guide you, help you, and even educate you, but when it really comes down to it, when the microchips are on the line, always trust your ear. If monkeys could write Shakespeare and computers were perfect, then it would be a different story and a different world. As it is, the pen remains mightier than the sword, and you have at your disposal the keenest edge of all — human comprehension.



*Ami Pro 3 was unique in finding the split infinitive. Its good use of colour makes proofing easy.*

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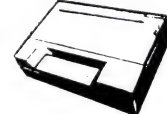
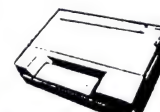
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# BUYING EDUCATIONAL SOFTWARE



## FOR HOME AND SCHOOL

Anne Glover puts her 15 years as a teacher (and a few more as a mother) into suggestions and recommendations for buying good educational software.



**S**O THE BUDGET has finally allowed a small splurge in the software department! Off you march to your favourite software supplier (or delve into their mail order catalog) only to be confronted by an array of dazzling products all trying to outdo their neighbour. Many pieces of software almost promise to turn the user into a genius overnight! Others have won awards from organisations that you (and I) have never heard of. Then there are the confusing titles — Kid's Pix and

Kids Words or was it KidsTime or even Kids Works! Of course they all claim to be fun and are all imploring you to buy, buy, buy!

As a parent or teacher how do you go about making the best possible selection from this mind numbing onslaught of salacious software? The best place to start is away from the software store — and hide that catalog for a while yet. Selecting software for use in the home, is quite a different task to that of the teacher selecting software for use in the school. While many

factors overlap, the teacher may be targeting a specific range of skills across a wider audience, while parents are hoping to target one or a few children. These are some points that parents in particular, should consider (further on I will examine the points more relevant to teachers) —

**What does your kid need?** The program must suit the needs of those who will use the program. Whether the students are two years of age or ninety-two, their needs must first be determined before any at-



tempt at addressing them is made. Try to be specific, talk to the teacher or look at ways to enhance their development in crucial areas. How is their report card, does it show up a poor level of concentration or sloppy written work? If your child has a particular need, target that area. Is the child a reluctant reader or does the thought of solving problems have them stumped, or perhaps they are far too slow with their mental arithmetic?

These problems and many more can be targeted by well designed software. Even if your child has no specific problems, every child needs to be literate, articulate and numerate. They need to be able to solve problems, work with a group and have well developed research skills. There are plenty of programs that will address these needs but some will do a better job than others.

**Be sure to select a program that will be used.** To achieve the program's objectives, the software needs to be used and to be used frequently enough, the program must be enjoyable and easy to operate. The computer at home has competition, from bike riding to watching TV as well as the other software programs. There is no way you will be happy to spend \$100 on new software to see it gathering dust on the shelves while the 'kill 'em dead' programs never get put down. So be sure the program is both educationally desirable and enticing to use. It is imperative that the program is fun if it is to be of any use in the home for the younger set. Older students (especially adults) can rely more on their level of motivation, but even for an adult, learning will be less painful if it is a bit of fun.

**Talk to friends with students of a similar age.** Do keep in mind that their child's taste and their needs can be quite different to your own child's.

**Don't waste money on several programs that do the same thing.** Your money will not be well spent if the program unnecessarily duplicates an existing program in your software library. So before you purchase, be familiar with all the software. Look for a product that complements your collection and meets the child's needs. Only when these items are quite clear is it time to check out the mail order catalog or make that long awaited trip to the computer shop. Keep your priorities clearly in mind while you shop around. Don't be swayed off your path by the glossy boxes. Then try to check out any possible program thoroughly. This means looking first at the available offerings in your area of need. Later, it means examining the box very carefully — all before you consider buying. **Young children can grow out of software quickly.** Check that the software can grow

with the child. There should be a range of options and varying levels of difficulty. Enough to keep the child happy and to keep them learning or developing their skills for at least two years. The length of time a child uses a program at home can be less critical if you foresee several siblings growing into it over the next few years. **Ideally the program should be child oriented.** Children need to lead, explore and learn at their own pace. Programs that do this will last a lot longer as the child will not grow out of set activities. A student centred program is also more likely to suit an older student — the flexible nature of such a program makes it more adaptable to individual requirements. Look for programs that encourage creativity, rather than rigidity of thought.

**The software must be easy to use and understand.** Switching between activities every few minutes is the way that kids initially explore a program, so they must be able to do this with ease. They should not have to go through six screens to find the menu and for pre-readers the menu should be easy to understand without reading. Many programs will have words on the menu, but the pictures that are also present will be enough to guide the younger user. For older students the program must still be easy and fast to get into. There is no point in frustrating their attempts at learning by introducing a slow and cumbersome program.

Also, if it is a 'talking' program you are interested in, check that your child can understand the 'voice'. Kids have a lot more trouble than adults understanding the robot-like voice in many programs. If they end up repeatedly asking 'What did he say?' you will all end up frustrated.

Check that any new clip art or other additions are compatible with your other software, not just the hardware. Many a dollar has been wasted by only checking the hardware requirements. (Naturally, you will check the hardware requirements, won't you?) Many programs now require a sound card (and some are specific — so check for compatibility here, too) or heaps of RAM or hard drive space to run. The fact that you are buying programs for little kids doesn't mean the program is little.

**Consider the student's interests.** If you have a Dinosaur or Ninja Turtle fanatic, your youngster may be enticed to do some dreaded spelling or maths by following their favourite theme. (Those Ninja Turtles must be useful for something!)

**Avoid programs that make nasty noises when a mistake is made.** Many youngsters have very fragile self-esteem. Those rude noises can be enough to put the shy ones

off for some time. I remember one youngster that avoided a program because the scary witch was going to get her. However, for older students a program that keeps score or tracks their progress can be very useful. The competitive nature of some programs will motivate many older students and keep them coming back for more. This is one of the many areas where your knowledge of your child comes in handy.

**Age ranges quoted on the packaging are often stretched to increase the market potential.** Don't rely on the age range specified — make your own judgment. It is, after all, your own child's level that you are interested in. He or she may be years ahead in maths and behind in language competence, for example. On the other side, don't aim too high — if the program is too difficult it may put them right off. The negative feelings may persist even beyond the age when the product could be being used, meaning your money has been wasted. Make the most of the initial enthusiasm by buying a product they can use now, and grow with tomorrow.

**Don't pay too much attention to the claims made on the box or in the catalogs.** So-called 'reviews' on the back of the box can be misleading. The most appalling program probably has something good to be said about it by someone. Some of the most boring products have packages that would convince anyone that they were more fun than a week at Disneyland.

**Look carefully at what the product aims to do.** Then take it all one step further by trying to determine *how* the product intends to meet this aim. It should be quite apparent that the activities are not just time wasters, but they have a specific educational purpose.

**If screen shots appear on the back of the box, take a close look.** This is where you will see the *real* program. It will generally give a more accurate impression than those words of praise the programmers have dreamed up for their beloved creations. Reviews in magazines such as this one will hopefully give a realistic indication of the product's worth. However do always keep your child's needs in mind.

**The best way to check out the program is**

*Opposite clockwise from top: Popular titles for the primary years include Flowers of Crystal and Maths Rabbit, as well as Reader Rabbit (pictured); software suitable for teenage students is rather scarce — Civilizations (pictured) is well worth considering; and among the best educational programs for the younger are the Fun School Series and Ready for Letters (pictured).*



## EDUCATIONAL SOFTWARE HOME AND SCHOOL

**to give it a trial run.** Don't just watch the salesperson give a demo or run a demo disk — get in and do it yourself. (Demos are meant to look good!) This will give you a feel for its ease of use, how quickly or slowly the program responds and the entertainment value of the program. Do be wary of letting the kids make all the choices — what seems fascinating in a five minute trial can wear thin once you have it home. If you keep in mind the range of options and the degree of control the child has over the program you will make a better decision.

If the dealer is unwilling to show you the program working in the shop, ask if you can take it home to try. Unless you have established a good working relationship with the dealer, you'll still be asked to pay for the package — get an agreement in writing that you can return the software for a refund or credit after a week or two if you think it's not suitable. (If the manuals are covered in sticky finger marks and the box has been kicked around the back yard, don't be surprised if the dealer refuses to take it back, however.)

**Avoid programs that promote violence or reinforce racist or role stereotypes.**

There are some excellent products on the market now for use in the home. The very best are those that keep in mind the features I have mentioned above. Some examples for the younger set are The Playroom, The Treehouse, The Fun School series and Ready For Letters. For those in the

primary school years The Super Solvers series manages to combine both fun and education in a very convincing way. Examples of the Super Solvers are Treasure Mountain and Midnight Rescue. Sierra has a nice range of fun programs called Mixed Up Fairy Tales and Mixed Up Nursery Rhymes. For the teenagers the pickings become a bit more scarce with the now old favourite Carmen Sandiego series plus SimCity (and the other simulations in the range) and the more recent Civilizations and The Castle of Doctor Brain.

Often it is the case that a team of writers will produce a range of similar quality products. If you find one is excellent for your purposes, chances are the rest of the series is at least worth a look. Don't rely completely on this theory, as with movies, a flop can follow a hit.

### Software for schools

TEACHERS OPERATE in quite a different environment to that of parents, though many of their aims are similar. Teachers need to target more specific objectives and will be more confined by both time and space. They do have a captive audience (an unfortunate but accurate term) and they need to meet their curriculum requirements. Selecting the appropriate software for school use is a complex task. Whoever makes the selection must be familiar with the needs of the students and the objectives of the teaching programs as well as the teaching styles of all the people involved. Before examining the advertising literature, the teacher

needs to be aware of the full range of products available on the market. Further, with the lack of compatibility between different software extras, the purchaser needs to be aware of the features of many programs and their future extension options.

The teacher also needs to be aware of more than just the software resources in the school. Alternative resources may already adequately cover one unit of work, yet another course of study may be lacking in resources. This will not be obvious unless the teacher knows about the effective resources in all forms.

The software may further only meet a few objectives of a unit of work. Whether this is a valid use of the school's funds will be determined by the other means of meeting those objectives. If they are difficult to meet by other means a program that in isolation may appear poor value, may be worth every cent.

With the proliferation of different computer types in schools, most schools have at least two formats operating at any one time. So even limiting your software selection to the one format is very often impossible. Apart from the different formats, some programs will require additional hardware, memory or other upgrades before they can be used effectively. Buying some programs virtually commits the school to the purchase of a sound card, speakers or more RAM. Decisions regarding software needs, especially in high schools, are now often intertwined with long term hardware plans, whole school priorities and the school budget.

Many programs these days need to be installed onto the hard drive. If the drive is

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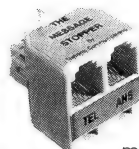
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full (and isn't it always?) a lot of negotiation regarding which program will be dumped may need to precede the software purchase. Inter-department relations (often not the greatest at the best of times) will be decidedly cooler if a math teacher dumps the language department's program without getting their prior consent. Purchasing programs that must be installed creates these problems. Then those that can run from floppies don't make the situation much better, as the teachers will often wish to keep the floppies away from the students when it is unnecessary for them to be handled.

Preference in schools will often be given to programs that can be backed up easily, or a site license purchased at a reasonable cost. We all make mistakes from time to time, and with the many eager hands of year eight boys, the potential for disaster is magnified many times over.

When examining the software the purchaser must keep in mind the differing teaching styles of the staff. Programs may be purchased for use by computer novices, perhaps to encourage these teachers to explore the computer with their students. So the content of the program and its potential may not be the only consideration. It may be necessary to forgo some of the usual criteria regarding selection to go for a simple to operate product.

Giving a reluctant computer user a temperamental or complex program will only reinforce their feelings and push them further away from integrating a computer into their classroom activities. Support materials in the form of teaching ideas and worksheets can be invaluable for this type of teacher. Try giving them something practical rather than throwing them the manual. Then of course, like all resources the existence of the software and its possible uses needs to be noted in the teaching program as soon as possible. We have all experienced the frustration of accidentally finding the ideal resource the week *after* we have finished a unit of work!

If a program can be used by a range of teachers in different circumstances you will be getting better value for money. Some programs do have a range of activities not only to suit the different levels of students but to allow teachers to use the material in different ways. Then of course there is the problem of the students deciding they have already done that work because that have used the program before. So designating some programs to particular units of work may be necessary to avoid the 'we've already done that' chorus we have all experienced at some time. Students rarely understand that a resource can be used for

different purposes to achieve another set of objectives.

Many programs are suitable for use by individual students. Others are better suited to small groups. The number of computers a class has access to, will govern how a program can be used. This must also fit in with the teaching styles of the teachers concerned. Check to see if the graphics are large and clear enough to be used in the preferred manner. Tiny text used in some programs is hard enough for one user to read let alone if three or more students are crowded around. If the school has a data display screen or the computers are networked, these facts must all be taken into account in the selection process.

Sound is a distractive influence in some classes. Especially so if the computer is in a classroom where other 'quiet' activities are supposed to take place. Space ships blasting off, planes crashing and funeral dirges can be a mite disturbing to those writing up their findings or delving through books for more information. Sound these days is almost a standard requirement of many programs. But if the sound of a program used by one student distracts a whole class, it can be a problem. Ideally the sound should be able to be turned off or at least down (not all programs or all school computers can comply with this command). Head phones are of course useful in this situation.

Some programmers have been unable to match the subject of their program with the appropriate language and features to suit that age range. Many *almost* useful programs abound, ones that would be great if the language was at the same level as the topic of discussion. Text for an adult does not suit a program designed for 12 year olds. Other times the graphics are well below the target age range. Sometimes we end up with a program that should be ideal for first year high school students, but the text is at an adult level and the cutesie graphics suit kindergarten. The student will have trouble taking in the information if everything is out of wack.

Price is no guide to the value of software. There are some simple but well designed programs that will outperform some more complex and elaborate programs. Equally some American programs are ideal for our use and others tend to confuse the students. Thankfully more quality Australian education products are coming onto the market, but simply because they are Australian doesn't necessarily mean they will suit our needs any better. They still need a thorough check before purchase.

Many of the above pointers cannot be put into practice without a lot of reading

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## EDUCATIONAL SOFTWARE

### HOME AND SCHOOL

between the lines when examining the box, or more even by trialling the program. For home users, find a computer shop that lets you try a program out first (don't just stand by and watch a demo) and stick by that store. For teachers both Edsoft and New Horizons now allow a trial period on many of their titles — make good use of this trial period to get the students and the other teachers checking out the program. To take advantage of this offer, an official school order form needs to be used and the goods (if not suitable) must be returned in about two weeks.

Some excellent educational programs for use in schools are those that use an adventure as the theme. Primary and some secondary schools use these to develop skills right across the curriculum. Using one program the students will be required to read and research, make plans and decisions also frequently doing a bit of mapping or decoding clues. *Granny's Garden* has been around for a while but it is still a fresh product for the up and coming primary school children and

*Granny's Garden II* is in production, I hear. Other popular titles for the primary years are *The Flowers of Crystal* and *Albert's House*, as well as *Reader Rabbit 2* and *Maths Rabbit*. Desktop publishing is also in the news with some excellent products such as *Bank Street Writer* (for the Mac). The *Knowledge Adventure* and its companions are also worth a good look. Foreign language programs such as *Berlitz* are popular as are simulation exercises such as *The Biology Explorer Series* and *CAD* programs.

In the tertiary sector more of the business products such as *Lotus 1-2-3* and *WordPerfect* as well as *CAD* and *DTP* packages are taking a hold. *JACS* (the *Job and Course Explorer*) seems to be taking this sector by storm.

Foreign language programs are also increasing in number plus specific software for specialist areas of study.

There are several books around that can give you a few more pointers. For parents, *Kids and Computers — A Parent's Handbook* (\$34.95, Prentice-Hall Australia (02) 939

1333) looks at a wide range of software. Novice teachers planning to set up a computer oriented classroom will find *Computers in the P-3 Classroom* an easy to read starting point. It is available from The Lincolnville School Support Centre, (03) 331 8209, for \$15.

In the last twelve months the range of quality software for the education market has exploded. Programmers have learned (at last) that education can be an enjoyable process and that there is a lot more potential to educational software than that of rote learning multiplication tables. Education has really come of age in the computer world. It is no longer acceptable to put out a half baked product.

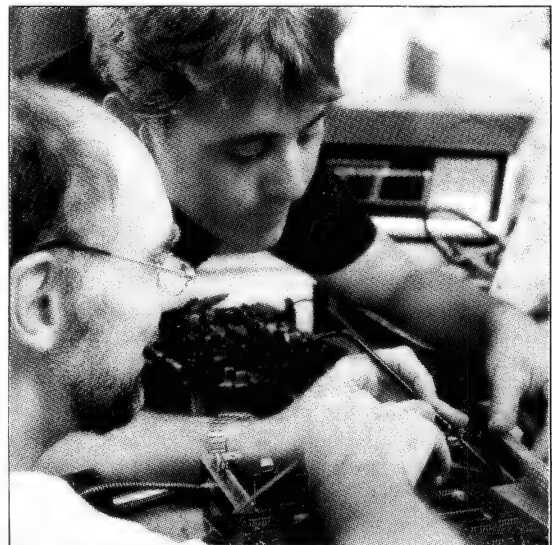
In 1993, sound, colour and graphics are all up to the standard of the more commercial games products. The material must be educationally correct, easy to operate and a joy to use. There is also a lot more Australian product currently in the pipeline. In the next year I predict a flood of good quality CD-ROMs, but as yet there is only a trickle in the MS-DOS education area. The education market has matured and will no longer accept a second rate product. Roll on the next twelve months. □

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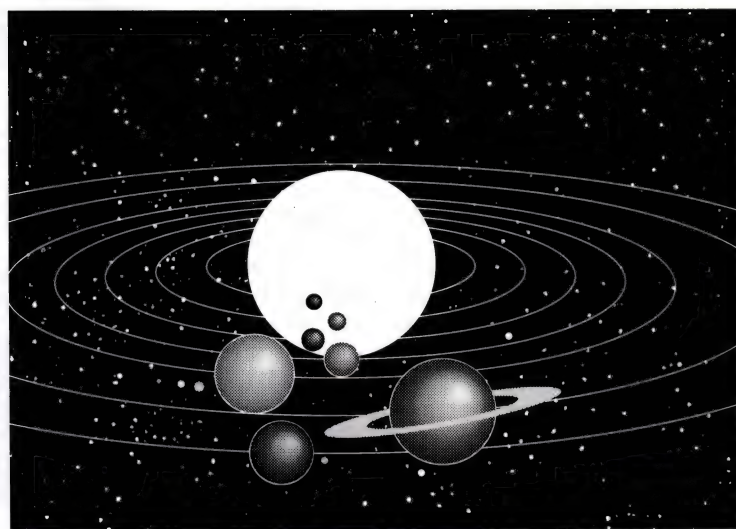
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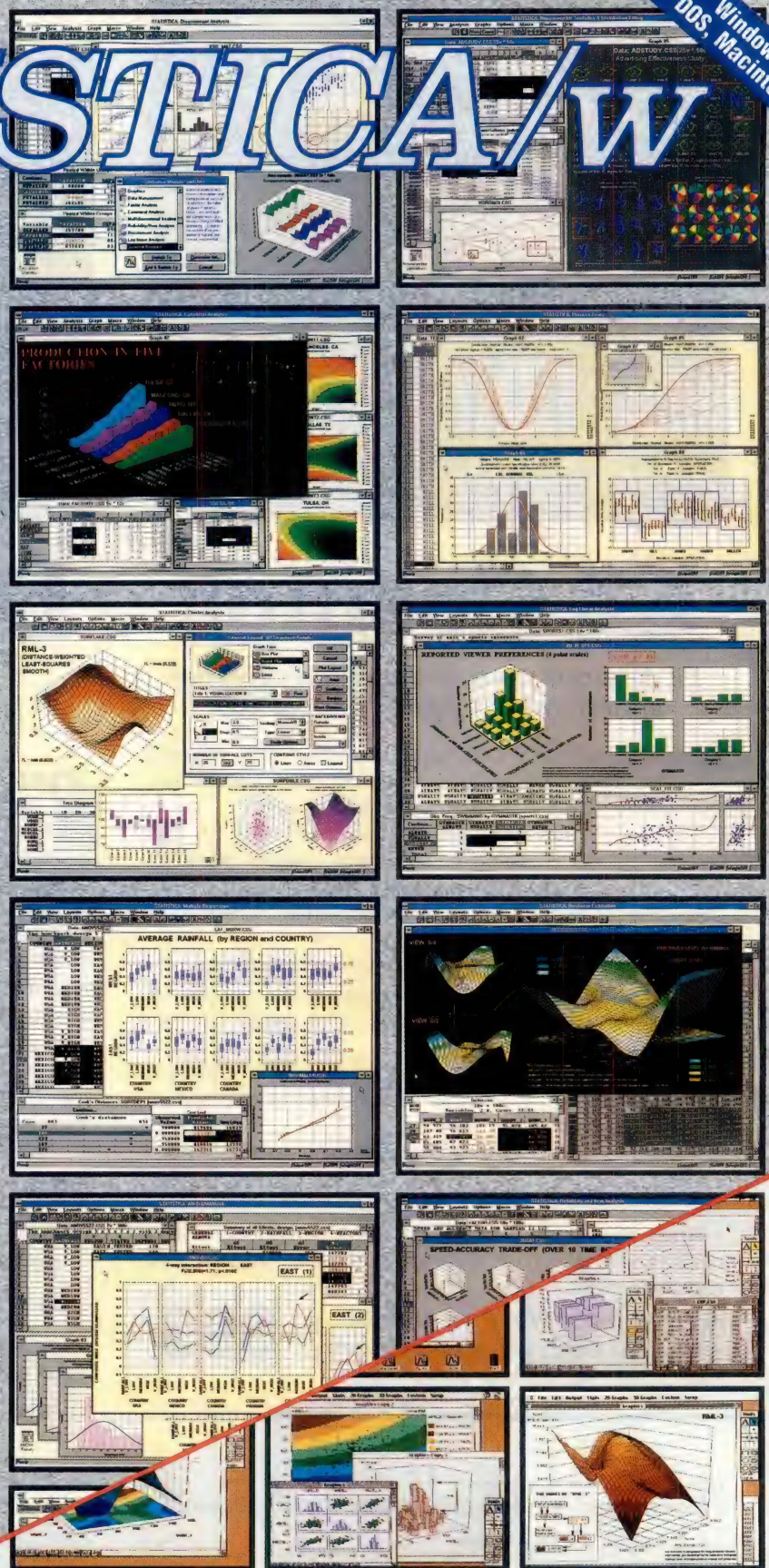
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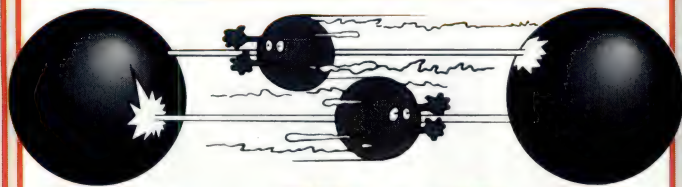


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- Reduced complexity by grouping similar components in classes.
- Extending of factoring functionality by adding new classes and subclasses to the system which also lets you reuse code.
- Incremental compilation so that you can save a piece of code and test it immediately.
- Source Code to all of the objects in Smalltalk/V

## Tools for Developing Objects

The Smalltalk/V for Windows development environment provides a full-featured set of tools for creating and testing your Windows applications, including:

- Browser, Single-Step Debugger, Object Inspector, and Object Filer.

## Tools Complete Set of Windows Objects

Smalltalk/V for Windows includes a large class library that supports Windows functionally. Some of the features supported include:

- Complete hierarchy of window classes.
- Complete support of Windows API (Kernel, GDI and User), DDE, DDL, MDI, plus ToolPane and StatusPane

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*Continued from page 53.*

Intel has built in these two arithmetical logic units (ALUS) at some cost. Any existing compiler for code (to turn the code won't work here), and the company is frantically working with Micro-Architecture Technology to create an optimal C-language compiler which can break up the programs into logical groups of simple instructions. By keeping these instructions simple, both the U- and the V-pipes can be kept active.

The chip also contains what could be classed as an '8-stage pipeline' floating-point-unit (FPU) with a multiplier, divider and an adder. It is integrated with the integer pipeline but includes another two execution stages. The P5 transfers control from the integer arithmetical unit to the FPU at the fourth-stage (Execute) in the pipeline. If 'exceptions' exist the next instruction is delayed until the first is finished.

The FPU takes only 3 clock-cycles to perform stand-alone add/subtract and multiplication calculations (18 to 38 cycles for divides), and when these instructions are fed into the FPU consecutively, the results will be output with each clock cycle. This is a 4- to 10-times performance improvement

over the 33MHz Intel 486DX chip. Other more complex arithmetical functions (including trigonometric) are handled by microcode.

The math co-processor is designed primarily for memory-to-register double-precision operations, but it can also perform register-to-register and single-precision functions at the same rate.

To eliminate conflicts between pre-fetch and data-access (and also to allow branching 'prediction') the P5 has both a data-cache and an instruction-cache. The instruction-cache runs two memory instructions in parallel, or combines to provide the 64-bit-wide floating point operations. When FPU double-precision operations are performed, the U- and V-pipes are combined to read data in slabs which are 64-bits wide, and the processor can conduct simultaneous access to data-cache and the FPU units.

Since Intel's 86-family only has eight standard registers, memory is generally accessed quite often — and this becomes a

bottleneck in the system. The P5 is accessed on average 0.6 times per instruction, which is almost twice as often as RISC chips, so the P5's cache tag has a dual-port format which can handle data and addresses from the pipes, and which contains the necessary logic for resolving address dependencies. The problem of having both U- and the V-pipe operating units is largely solved by the dual-port format and the memory management unit.

There are 3 million transistors packed onto the P5 chip, and the separation of elements is now down to 0.8 microns which is getting near to the limit of standard TTL voltages. Intel says that the chip will run at 66MHz, and give performance benchmarks above 100 MIPS (million instructions per second — for comparison, a 33MHz 386DX runs at about 4.5 MIPS) which is in the region needed for the new graphic intensive multimedia applications, and for multi-tasking.

Cyrix say that they will have a clone of the P5 ready early this year! □

***Cyrix say  
that they  
will have a  
clone of the  
P5 ready  
early this  
year!***

## **Solved a problem lately?**

**As Australia's own PC magazine, we pride ourselves on our local content. In maintaining that tradition, *Your Computer* would like to hear about your experiences with personal computers and pass them along to our readers. We are currently seeking casual and regular contributions covering the use of PCs in small businesses. (Note: we are not seeking standalone product reviews at this time.) Articles should be 1200 to 1500 words long and take the form: problem, investigated solutions, implemented solution, and give the reasons behind your decision. Our style is quite informal — check out the articles in this issue.**

**Please submit your article as an ASCII file on disk (we can read all common formats), accompanied by hard copy. All care will be taken with submitted material, but we cannot take responsibility for the safety or return of submissions. Don't forget to include your address, a daytime fax or phone number, and contact phone**

**If your article is being considered for publication, we will contact you regarding payment and arranging photographs or other suitable illustrations. Send your material to: Jake Kennedy, *Your Computer*, PO Box 199, Alexandria 2015 NSW.**

**numbers for an Australia reseller of any products mentioned.**

**If you have any technical advice or hints on using hardware or software that would be of interest to others, drop Mark Cheeseman a line care of 'Tech Tips' — it could be worth \$100!**

# **your computer**

## **MAKING YOUR MICRO WORK**



One also needs two spare slots inside the PC — the VGA card obviously replaces the current video card. (The MPC standard requires a minimum of a 386SX, 2MB of RAM and a 30MB hard disk — if your intention is to get serious about multimedia, that configuration would be a joke!)



The wing feathers act like a fan when the wings are pressing downward. They lay flat together and push the air to give the bird speed. When the wings are lifting up, the feathers turn sideways to allow the air to flow through them.

Click GO to see this bird fly.



**Installation**  
INSTALLATION meant opening the case of the computer and installing the SuperVGA card with co-processor, the sound card and the interface card for the CD-ROM. Note that if your computer is still under warranty, you shouldn't touch it — opening the case will breach the terms of your warranty. Any computer under warranty should be returned to the supplier for work to be performed.

My computer had three spare slots (one more than required — which is highly unusual for me), so I had no trouble in finding space for the cards. Before diving in and installing anything I sat down and read all the documentation. Tai-

wanese documentation is improving — Asian countries must at last be employing English speaking people to write their manuals. Not that the content is a vast improvement — it still takes several readings to piece all the instructions together. I was able to decipher most of the instructions without too much trouble, however, it was necessary to make a couple of calls to the supplier concerning the DIP switch settings for the SuperVGA card, which replaced my current video card. (The manual actually had the wrong information.)

The main problem in installing any new hardware revolves around two in-built features of the IBM PC architecture. Just as there are never enough spare slots, there are also never enough IRQ (Interrupt Request) lines and DMA (Direct Memory Access) channels. Some cards (indeed the CD-ROM card) get around this by allowing DMA sharing; there is no way I am aware of

*Having 600MB of data on-line makes it possible to include animation to demonstrate such things as how a bird's feathers behave during flight. This article from Compton's Multimedia Encyclopedia on birds — which is some 100 screen 'pages' long — includes many colourful illustrations as well as bird songs and a detailed description of how a bird's anatomy has evolved to enable flight.*

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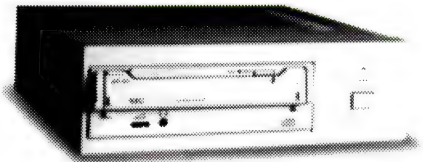
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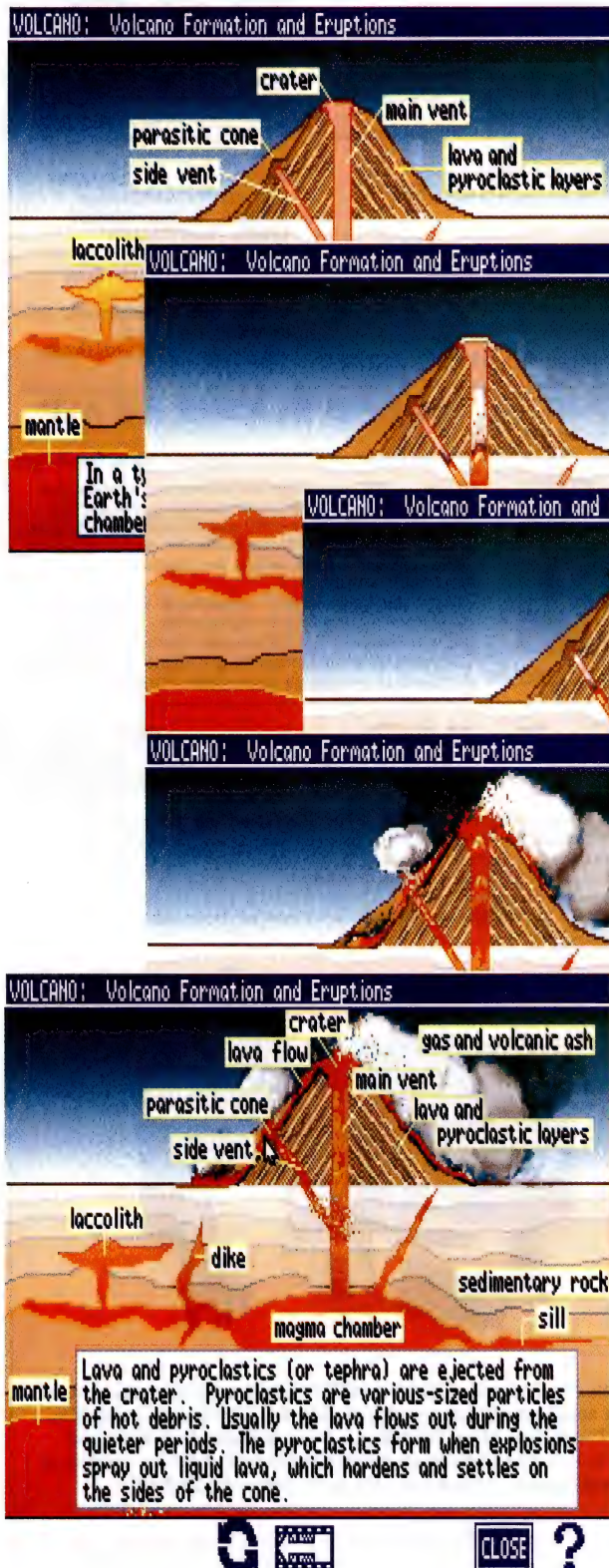
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Your Computer 73



*The explosive eruption of a volcano is brought to life, complete with speaker-rum-  
bling sound effects in another article from Compton's. Each article has numerous  
cross-references to other topics and the included dictionary — clicking on a cross-ref-  
erence opens the appropriate article or brings up its definition.*



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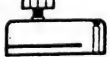
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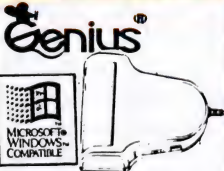
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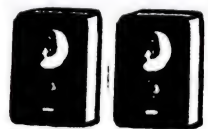
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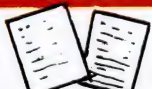
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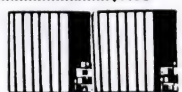
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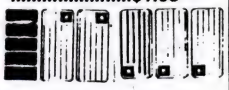


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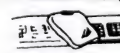
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One of the newest kits to be released in Australia is the Media Vision Fusion CD 16. The MPC-labelled package comprises an internal Sony CD-ROM drive, the Pro Audio Spectrum 16 sound card and a set of Labtec stereo speakers; a Quick Start program automatically determines the ideal configuration for the system and installs all necessary software and drivers. The 16-bit stereo sound card (its 8-bit little brother was reviewed by Eric Holroyd in December '92) samples and plays back at 44KHz and has an on-board 20-voice stereo synthesiser and 4 watts per channel. A MIDI interface enables recording and playback at the same time; there is also a joystick port. Included software with the card is Pocket Recorder (for sound recording, editing and playback), MIDI sequencer, a software controlled mixer, a text to speech synthesiser and TrakBlaster Pro, a four-track music player. The 3-inch Labtec speakers have shielded magnets for use adjacent to a computer screen, built-in amplifiers and individual volume, bass and treble controls.

Media Vision Fusion CD 16 \$1099 (includes three CDs: *Where in the World* is *Carmen Sandiego* (Deluxe Edition); *Compton's Family Encyclopedia*; and a games disk with *Wing Commander II* (with *Speech Accessory Pak*) and *Ultima Underworld*. For more information contact Chips and Bits (03) 696 5955, fax (03) 696 1942.



to add more IRQ lines — it's a limitation of the PC architecture. I decided to leave all the default settings for the jumpers as the supplier had decided they should be and bravely installed the cards in my computer. This was fairly easy and went much as I had

expected.

The final thing to install was the CD-ROM drive. I have a spare bay in the front of my PC, so the physical space was no problem. However, there was no spare power lines left to supply power to the drive — this was

overcome by installing a 'Y' adaptor (the PC power version of the 240V double adaptor). I secured the CD-ROM using the supplied screws and connected the drive cable to the interface card.

The CD-ROM installation software came on both sized media. During install, it writes one line (a device driver) to the config.sys file and several lines to the autoexec.bat file. I used to be very nervous with installation programs that do this, but most of them seem well-behaved and I have made copies of both of my 'normal' versions of these files and called them autoexec.sav and config.sav.

I do have one complaint about the hardware side of things. In order to access a CD-ROM (whether it be music or programs), one needs a 'caddy' — a special carrier frame that holds the CD-ROM. They cost about \$17 each. One has to remove the current CD from the caddy and replace it in its case. One then removes the desired CD from its case, places it in the caddy and then inserts it in the drive. If all CD-ROM programs were supplied in a caddy . . . Oh well!

I have never become involved with some of the esoteric uses of computers, such as MIDI and keyboard attachments. I have for many years enjoyed playing the organ — and I don't mean those little pseudo-organs: I have a nice big Lowrey organ that I thoroughly enjoy playing, so why toy around with MIDI, when you can have 'the real thing'? However, I must say that I was impressed with the 16-channel music that came as canned demos with the CD-ROM. I also enjoyed using one of the public domain programs that came with the CD. It enabled one to play a standard CD, whilst using the computer for doing other things (such as typing this review).

The final challenge was to install Microsoft Bookshelf. This is a CD-ROM package (about to be released in its latest version, I believe), which contains The Hammond Atlas, The American Heritage Dictionary, The Concise Columbia Encyclopedia, Bartlett's Familiar Quotations, Roget's Thesaurus II, The Concise Columbia Dictionary of Quotations, and The World Almanac 1991.

I ran the install program and then fired up Bookshelf and . . . nothing!

Surely I couldn't be imagining things. Everything had worked so well up to now. I tried re-installing Bookshelf — same result. Oh well, a call to Microsoft Product Support and after a long period of diagnosis (four days), the problem was identified as WinFax. This is a program that I reviewed in these pages not so long ago and am still using.



I'm not so sure that Delrina Technology (the makers of WinFax), are to blame here — both WinFax and Bookshelf use a program called 'viewer.exe' and when Bookshelf went to look for its viewer program, it found the WinFax one instead and simply aborted. It's a long, long time since I've done any commercial programming (one reason for handing over the Forth Column), but I seem to remember that any programs written using one of the Microsoft languages had some sort of identification header included with the program.

Surely Bookshelf could determine which is the correct viewer program? I was also quite averse to having to carry out one of Microsoft's suggestions — re-install Windows on a different drive (or directory) and then gradually re-install *all* my applications until I find the one that's causing the problem. This is, in fact, exactly what I had to do: it took me two days — I'm a big user of Windows programs and my Program Manager groups look like a mine field.

Oh well! (again).

Finally, I fired up some of the programs included with Bookshelf, notably the Atlas and the Encyclopedia and tried the multimedia features and listened and watched as vulcanism was explained in a fair amount of detail. When I used Scrapbook+ to take a screen shot of some of the nice Bookshelf screens, I found they'd been captured in 'funny' colours. The colours reminded me of a long-ago issue of *Mad Magazine* talking about the introduction of colour television. It went something like 'see the red grass, see the blue trees, see the purple lady — colour TV still has a few problems.' Likewise the interaction of software and hardware still has a few problems.

I tried the Atlas and found Australia. When you click on a little red dot indicating the capital of the country, you are presented with the flag and a speaker symbol. Click on the speaker and the national anthem should be played through the sound card. I am yet to hear 'Advance Australia Fair', as no amount of coaxing, calling, re-installing, changing drivers, loading software, anything, will elicit one dulcet note from this feature of the program.

Oh well! (again).

The spoken commentaries are typical American accents, although they do intersperse both male and female voices for different presentations. There are about 30 different multimedia presentations in the Encyclopedia, including a demo of the workings of a four stroke engine.

### Summary

AS INDICATED earlier, I am a fairly brave person as far as PCs are concerned. I frequently

pull my PC apart to change a card, upgrade a motherboard, add more RAM and so on. Now, the multimedia hardware and software installation were relatively easy. The operation was also (relatively) easy. However, on my 'Oh well!' scale, one 'Oh well' means 'Is this really necessary?', two 'Oh wells' mean 'Is it worth the money and time?' and three mean 'No, it isn't!'

One of my compatriots found out that I was examining this system and said that she was interested in installing a similar system inside a computer. She asked my advice and I asked if she had several hours to spend . . .

If you have an absolutely *desperate* need to become immediately involved in multimedia, sell your current computer and buy one with everything already installed and

working. That way, when problems arise you can take the whole shebang back to the supplier and say 'Fix It!'

I believe that the current technology is still in the compact audio cassette versus 8-track cassette stage or the Beta versus VHS stage. One is not quite sure of the way in which the technology will travel. It's still too young to be stable. In two year's time however . . .

It's also interesting to note that Microsoft (whose last hardware product was the mouse) have brought out their own version of a sound card. The reason behind this, the company said, was that none of the currently available sound cards fully implement the multimedia capabilities of Windows, so right now, waiting seems like a good idea.



*The ideal multimedia solution is a fully configured system, ready to plug and play (pun intended). Early multimedia PCs were often put together by dealers whose main interest was cost, rather than quality, as a result many of them didn't fully comply with the MPC standard — sound cards were a particular worry. Today, there are many excellent MPC systems (with and without the logo) available 'off the shelf'.*

*Late last year we offered YC subscribers a chance to win a Compro 386SX Multi-Media System, valued at \$6700. Well, an enhanced version of that system is now available through KCM Direct — it has more features at a greatly reduced price. The new system comprises a 40MHz 386DX system with 4MB of RAM and a 256KB cache, a 170MB hard disk, two floppy drives, a LaserWave CD-ROM drive and LaserWave Plus sound card. Included in the package are Windows 3.1, a Windows video accelerator board, a non-interlaced SVGA monitor and an excellent selection of CDs: Comptons Multimedia Encyclopedia for Windows, Microsoft Works, Holmes: Consulting Detective and The Animals.*

*The 8-bit LaserWave Plus features a 22-voice FM synthesizer with 128 preset instrument sounds and stereo sampling at 44.1kHz. It also has a 10-channel playback mixer, Audio Mate (for adding sound to DOS applications), and a software controlled mixer which can handle multiple sources.*

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# PROGRAMMING LANGUAGES

## PART 1

**Marcus Green gives a run-down on the various programming languages.**

---

**P**ROGRAMMING languages like Basic, Pascal or C are ways of giving instructions to a computer. At the lowest level a computer only understands binary which consists of zeros and ones. Humans find it very difficult to understand binary. Programming languages allow a human understandable language to be used and then converted to binary by the computer.

Programs that convert from a human understandable language to binary are either compilers or interpreters. A compiler converts to binary once and produces a program that can be run without any additional files. An interpreter converts from the higher level language each time it is run. This additional overhead means that interpreted programs are usually slower than compiled programs. Compiled programs can be given away or sold without paying anything more to the compiler vendor. When computers were first invented there were no programming languages as understood today. Programs had to be written in binary. The simplest of programs required huge amounts of time to write. It was very difficult to track down bugs (errors), or to change programs.

The next invention in programming was Assembler, which is a step up from binary in ease of use. It uses more easily memorised words that indicate what the instructions do. An example is the need to move a number into a piece of memory. Instead of using a sequence of zeros and ones, a more easily remembered word like MOV (for move) might be used. Here is an example of Assembler programming for the PC to illustrate how user hostile Assembler can be —

```
.MODEL SMALL  
.CODE  
    MOV AH,2h  
    MOV DL,2Ah  
    INT 21h  
    INT 20h  
    END
```

This program simply prints an asterisk to the screen. Without an in-depth knowledge of Assembler and PC hardware the

program is meaningless. A good programmer would include extensive comments to give an idea of what each line does. Comments are purely to remind the reader what each instruction does and why it is there. With Assembler, even the original programmer may soon forget the meaning behind a piece of code. Assembler code is specific to particular machines. To convert from one machine to another needs an almost complete re-write.

As computers became more common, there was a demand for easier ways to program them. There was a need for a way to allow the average intelligent user to create computer programs. These would be relatively easy to understand and at a high level. With a high level language the programmer does not need to have an in-depth understanding of the hardware of the computer. This has the benefit that a programmer may easily use machines from more than one manufacturer.

Much of the history of programming languages has been a trade off between performance and ease of use. In the early years of programming, the expensive resource was machine time. It did not matter too much if writing a program in Assembler took a long time. If it ran fast on the slow and expensive hardware it was doing its job. Over time the ratio of cost has changed. Hardware is cheap and still getting cheaper. Good programmers are expensive. It is important to get the highest productivity out of the programmer. Performance can, up to a point, be fixed with faster hardware.

### **Fortran**

ONE OF THE FIRST high level languages was Fortran (Formula Translation). It was designed to allow scientists and engineers to perform speed calculations on the early computers.

Many of the early computers were used by the military. Languages like Fortran allowed scientists to perform the vast number of calculations for tasks such as weapons design and missile ballistics.

Without the early computers it would have been impossible to have designed the first space rockets. Before computers, the military used rooms full of clerks for calculations. With this method the calculations for the design of the first moon rockets would still be going on.

Fortran was available on several different manufacturers' hardware. A programmer who had experience on an IBM machine could use a machine made by DEC without having to completely re-learn the trade. This portability has always been a goal rather than a fact. With a portable language simple programs can be taken from one machine to another and run straight away. More interesting programs usually require some knowledge of the underlying hardware. Each language vendor enhances their own versions to gain a market edge. These enhancements are often so useful that programmers come to rely on them and end up depending on non-standard features.

### **Cobol**

AS THE PRICE OF hardware continued to fall, there was a requirement for a language suited to the needs of business rather than science. The language Cobol emerged around 1960 and was adopted extensively on the huge mainframes that major corporations adopted as the first computers. These corporations could use Cobol to automate repetitive tasks such as payroll. Cobol (Common Business Oriented Language) is a wordy language requiring more writing than other programming languages. The idea is that it provides a certain amount of automatic documentation. This makes life easier for someone trying to change another person's program. The idea was to increase the ease of maintenance and readability and increase programmer productivity.

Cobol and Fortran are regarded as somewhat old fashioned today. Although there are believed to be more lines of Cobol than any other language, few new projects are created in it.



## Basic

FOR MANY PEOPLE the first experience of programming languages is Basic. The story goes that Basic is an acronym for Beginners All Purpose Symbolic Interaction Code. Many people think it is just a good name for a language suitable for beginners. Basic was created to fill the gap between the novice and the professional programmer. Although Cobol and Fortran were many times easier than Assembler, they still required considerable training to create a simple program.

With Basic, an absolute beginner can create a simple working program in the first lesson. Basic was designed to make it easy to learn the principles of computer programming. The idea was that the student would get almost instant gratification from the language. The cynics might call it the microwave meal of languages. It gives an instant result but will never satisfy the gourmet. Here is an example of a Basic program on the PC to reproduce the same effect as the Assembler program earlier.

```
PRINT ""
```

After typing one line of code the student would have the instant gratification of a working, if boring, program.

This advantage of Basic was also its drawback. After a student became familiar with the essentials of programming, a new language had to be learnt in order to start commercial programming. The original versions of Basic were interpreted and did not support structured programming. A structured programming language makes it easy to break down a programming language into small components.

This means a programmer can work on small modules instead of having to keep the big picture constantly in mind. With this approach it is easier to find bugs and to change a program later on. Structured programming is an approach to writing programs as much as a language feature. To advocates of structured programming the dark force was the GOTO instruction. The casual use of the GOTO instruction in Basic programs can lead to difficult to understand code — sometimes called spaghetti code since it is hard to track where the strands of the program start and end.

## Pascal

STRUCTURED PROGRAMMING offered improved programmer productivity without a significant performance penalty. The Pascal programming language was designed to teach good structured programming (it's named after Blaise Pascal). Although not as easy to learn as Basic, it gave students a system closer to commercial programming than the artificial simplicity of Basic.

The problem with standard Pascal was that it had the added complexity of a structured language without the total flexibility of Assembler. The language cynics called it a Bondage and Discipline language. When a particularly tricky problem came up the programmer had to work around the language rather than with it. For the less expert, these constraints often prevented the programmer falling into traps.

Very little in the world of programming stays constant. Language developers are constantly working around the perceived drawbacks to languages. The first versions of DOS shipped with a version of Basic called GWBasic. The GW was believed to stand for 'gee whizz'. That version was impressive in that it would work on a machine with only 64KB of RAM. Programmers were pleased to be able to use Basic instead of Assembler. It allowed beginners to start to use their machine when commercial software was rare and expensive. Over time as PCs have become more powerful, programmers expect more from a language.

The most popular version of Basic is Microsoft's QuickBasic and its close relation QBasic. QuickBasic supports structured programming and is a compiled language allowing the creation of high performance stand-alone executables. There is very little the average programmer would want to do that cannot be done in QuickBasic.

The two languages that have come to dominate general PC programming are the C language and Pascal. The dominant version of Pascal is Turbo Pascal from Borland. Borland caused a revolution in PC programming with its first version of Turbo Pascal. It was sold via mail order and the price was such that users suspected that something this cheap couldn't be that good. It was cheap enough for them to try anyway and it was a runaway success. When the main way to get performance was via Assembler, it offered high performance in a dialect of a widely understood language.

Turbo Pascal also offered the programmer an integrated development environment. Before this, when a programmer bought a compiler, that was exactly what they got. To create a program you needed to use your own editor to create the source code. Having created the source you exited to DOS and ran the compiler. If it compiled without error, you could then link the object file to create the executable. You would then run the executable to see if it did what you wanted.

Borland's Turbo Pascal offered a single environment that the programmer did not have to leave. It allowed the code to be typed, and a special key combination

would cause compilation, and the executable to be run. This does not sound remarkable today as just about every compiler shipped comes with this capability.

While Turbo Pascal fulfilled most programmers requirements, there were still those who chafed at the Bondage and Discipline aspects of the language. Programmers who wanted to get the maximum performance out of the standard 4.77MHz PC did not want any interference from the language itself. They wanted to be able to do anything that the machine was capable of but without the headaches of Assembler. The language of choice was C.

## C

THE C LANGUAGE was developed (after B) by the creators of Unix. It was developed to give the power and flexibility of Assembler with the ease of use of the high level languages like Pascal or Fortran. Here is a short program in C that writes an asterisk to the screen —

```
main()
{
    printf("");
}
```

It's much easier to read than the Assembler example, but it has more mumbo jumbo than the equivalent program in Basic. A well written program in Assembler is still faster than the equivalent in C but the program in C can usually be written much faster.

The C language has come to dominate the world of applications programming for the PC. Almost every commercial program has been created using a version of C. Commercial programs often combine some Assembler. This is usually for areas where extra high performance is required. Its popularity has attained a momentum of its own. Although the core of the C language is very small, there is a huge market of libraries and add ons. Libraries are collections of routines that can be combined into other programs. If a programmer wants a particular effect such as a pop up menu or data entry form, there are dozens of libraries to choose from.

If the past belongs to structured languages like C and Pascal, the future belongs to Object Orientated Programming (OOP) and task specific languages. Object orientation is the hot software topic of the moment. It is being used to sell anything from a new version of C called C++ to the use of the right mouse button. One of the main areas for specific task languages is databases. Database languages such as dBase have built-in support for a database format. In my next article I will be covering new trends including OOP and task specific languages. □



# TRANSLATION, PLEASE

*Emulating one platform on another has always been a slow and messy exercise. Stewart Fist reports on a new and much better approach: direct translation.*

THE ORIGINAL IDEA of interpreted high-level languages is that they could be used on any computer architecture. If you wrote a program in Basic for the old Apple II, you could reasonably expect to translate it (by adding a few lines of code, and changing some of the commands) to suit Basic for IBM's PC.

It never worked out this easy in real life, however, mostly because the forms of Basic written for one machine rarely matched that written for the other. Languages in the early days were always on the move and changing in anything other than their core commands, but the 'portability' of your program was one of the main reasons why you used an interpreted language.

The problems of 'porting' from one machine to another are, of course, many times greater once a program has been compiled (translated down to the machine language level). If you attempt to take a disk written in assembly language, disassemble the code to work out what each instruction is for, then translate those instructions for another platform — then you've really got your work cut out. It is done all the time, of course, but only by many man-years of Churchillian 'Blood, Toil, Tears and Sweat'.

## The problems

AS PROGRAM INTERFACES have become more complex with the rise of graphic user interfaces (GUIs) and the dominance of WIMP (windows, icons, mice and pointing devices) the problem of translation has increased almost exponentially. Who will forget the years that it took Ashton-Tate to translate dBase for the Macintosh (or how disastrous the translated version was), or the delay between the PC and the Mac version of Lotus 1-2-3, for that matter?

Superficially, you'd suspect that computers would be particularly good at this type of translation process. After all there's nothing 'fuzzy' about an assembly language program — each instruction serves a single and clearly-defined purpose. But, over the years many programmers have

come to the conclusion that this job is nearly impossible to automate — certainly when you are dealing with more than a few hundred lines of code in a substantial program with graphic user interfaces.

Application porting must be of primary interest to the major software vendors for very important 'bottom-line' reasons, but it doesn't appear that they've been able to automate the process to any significant degree, even in-house. It still seems to take a fair swag of Microsoft programmers about six months to 'port' one of their own Apple Mac applications over to Windows, and vice versa — so it is obviously not a trivial task.

Well there has finally been a breakthrough by a company known as Echo Logic and the achievement is recognised publicly by the fact that AT&T, the giant American telephone company, bought them up instantly. Owning Echo Logic has given AT&T some very valuable bargaining chips to play at the compromise-table with Apple, IBM, Motorola and Microsoft, and deals have obviously already been struck.

The product is called FlashPort, and it is a general translation tool which Echo Logic says, performs the translation task 'in a matter of hours, with little or no human intervention' — this 'typically takes several months to a year'. It takes the executable object-code (the program as you would buy it) and creates an 'operationally identical version' on a previously incompatible computer. According to AT&T, 'the translated version behaves like the original in every way'.

Currently Echo Logic are running several translated Macintosh programs on a prototype RISC-based computer using the Unix operating system, and last May Apple signed a joint agreement with them to translate existing Mac application software over to the new PowerPC-based Mac. This is the joint IBM/Apple RISC workstation series that Apple plans to introduce in late 1993 or early 1994.

The PowerPC push is an interesting development, because Apple and IBM were both intending to use emulation software for the PowerPC to retain backward compatibility with their existing lines of software. Their idea was to use the speed of the RISC-based machine to run emulation

packages, and then run the old applications over the top of this. RISC processors churn along so fast, that they can afford to waste 70 per cent of the processing time on the emulation task — they will still have a machine that runs as fast, or faster, than an existing Mac or Windows machine — so the theory goes!

## The relief

OBVIOUSLY NOW Apple and IBM will be looking more towards translation rather than emulation. If the job can be done this easy and quickly, it makes sense to translate — they may as well devote the full power of the RISC chip to the application if they can — emulation just adds an extra layer of complexity, and most emulation programs have bugs.

Echo Logic are keen to point out that FlashPort is a general translation program, not just one developed for the Mac. They chose Mac applications for the initial trial only because the visual and user-interface characteristics were particularly challenging, they say, but FlashPort is essentially 'architecturally neutral' so it is possible to develop similar tools for a wide variety of computer systems. 'We

wanted to demonstrate something so difficult that it would suffice as the 'general case', says Chris Macey, Echo Logic's chief scientist. 'No one had ever seen a Macintosh application run on anything but an Apple computer, and even among members of the team there wasn't a deep belief that we would be able to do this.'

Macey claims that they had to execute more than a million Apple instructions correctly, just to be able to draw a straight line across the screen like the Macintosh does. But 'when we finally drew that line I stopped being anxious, because I knew that everything else could be done,' he says. 'Software developers seldom feel a sense of triumph; what we feel when we succeed is a sense of relief.'

With the IBM/Apple common 'Pink' operating system in the pipeline, and half-hour translations of applications from any one platform to any other, it really is going to be difficult to differentiate computers in the future, isn't it? Finally computers are beginning to look like commodities. □

***[FlashPort]  
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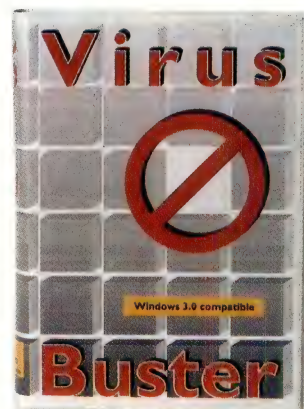
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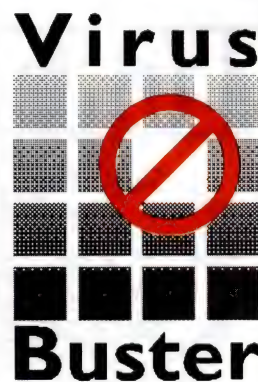


# Virus Watch

Computer virus news from Jack Kenyon, Director of Development, Leprechaun Software Pty Ltd

**Leprechaun Software Pty Ltd**

PO Box 184 Holland Park QLD 4121 Tel: (07) 343 8866 Fax: (07) 343 8733



## What's that you say?

One of the most annoying things about buying an anti-virus package can be that you are likely to be completely bamboozled by the salesperson. Not that the salesperson is trying to confuse. Just that when it comes to computer viruses there are so few who really know what they are talking about, it is usually the blind leading the blind down a long dark alley.

Not that there is anything particularly intellectual about a virus. Compared to real software like a desktop publisher, the average virus is absurdly trivial. No, part of the problem is that "experts" like to make up big words to describe their subject. And, while it is necessary to invent terms for this new field, I think perhaps a little snobbery creeps in. In this article I try and reduce some of the common jargon to common English.

**VIRUS** : The essential character of a virus is that it is software that can replicate itself between programs and/or disks.

**TROJAN** : A Trojan is a program that performs functions without the knowledge of the user. Usually this function is destructive, but some perform actions like gathering information. A Trojan is not a virus, but a virus can contain Trojan functions.

**ENCRYPTION** : An encrypted virus contains code to encrypt part of itself when it infects a program, and to decrypt that part when it executes. If we think of viruses as having "generations" of infections, each generation of the virus will look different on the disk, but it will execute exactly the same instructions.

Encryption techniques can vary greatly.

Most viruses use a simple direct character translation using a changing key. This is sufficient to render decryption during scanning prohibitively slow.

**POLYMORPHIC** : With a polymorphic or mutating virus, generations may be functionally different. Each generation of the virus looks different on the disk and the actual executed code will also be different.

Simple mutations "pad" the essential virus code with pseudo-random machine instructions. Padding instructions are carefully selected so the outcome of the execution is not affected. As an example, the instruction "mov ax,ax" will move the contents of the ax register into the ax register.

More complex polymorphic viruses change the actual instructions in the code (within carefully defined limits) without affecting the outcome of the execution. There are lots of ways to add two numbers together, for example.

Because each generation is significantly different, scanners can have difficulty in detecting polymorphic viruses. Virus Buster uses a number of innovative techniques to detect such viruses while maintaining adequate scanning speed.

**STEALTH** : Encryption and polymorphism are passive masking techniques. In contrast a stealth virus uses active techniques to mask its presence.

Again, the level of masking varies widely. A common and simple technique is to intercept DOS and subtract the size of the virus when DOS checks the file size. This results in a DIR failing to reveal the growth in size caused by a virus.

## A question of ethics

Leprechaun Software is notable amongst anti-virus producers in that it has always condemned the writing of viruses for any purpose, including "testing", and has never allowed outside access to its collection of captured viruses.

Recently Leprechaun have formalised their position by adopting a corporate code of ethics. This code is modelled on the NCSA code and is strictly enforced within the company.

As part of the code, Leprechaun Software

- will not knowingly endorse, condone, or encourage any activity which is likely to worsen the computer virus problem.
  - will not write computer viruses for any purpose
  - will not publish information which could be used to create viruses.
  - will not knowingly allow the transfer of any viruses, or virus source code, to anyone for any purpose at all, with the exception of the Australian Federal police and military.
  - will support and encourage the development of legislation which will tend to decrease the global virus problem.
  - will provide accurate, timely information about and never intentionally mislead any person about computer virus issues.
- Public comment on the code is welcome.

# VIRUS BULLETIN

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# TECH TIPS



EDITED BY: MARK CHEESEMAN

If you have a PC problem that's been bugging you, put the details on paper and send them to us, and we'll try to help. On the other hand, if you have any technical advice or hints on using hardware or software that might interest others, drop us a line and we'll pass them on. The best Tech Tip published each month will earn the author a \$100 voucher, redeemable at any Rod Irving Electronics or Software Express store, or by mail order from either company. Send it to Tech Tips, *Your Computer*, PO Box 199, Alexandria 2015 NSW, or fax them to (02) 353 0720.

## Not enough memory

*I have a 486SX computer, with 4MB of RAM, a 120MB hard drive, and run Windows 3.1. I was using Police Quest 3 through Windows, as well as versions 1 and 2 very satisfactorily. However, since installing Stacker, I am unable to run Police Quest 3 at all, either through Windows, or from the DOS prompt. I get a message stating 'not enough memory, remove TSR files'.*

*After putting a 'rem' statement before smartdrive, I had no trouble bringing Police Quest up, but it is tiresome having to continually do this. Why is it that I had no trouble running PQ3 through Windows before installing Stacker? PQ1 and PQ2 are still working fine as are all the rest of my programs, with no loss of speed or power. In fact, I think Stacker is great.*

**Helen Hancock**

The clue to your problem is in the error message, suggesting that you remove TSR programs. TSR stands for 'terminate and stay resident', and refers to a class of programs which remain in memory after they have been run, so they are ready to be used when needed, without having to be re-loaded.

The TSRs most people are familiar with are utilities which can 'pop up' over the top of a foreground application — SideKick is a good example. However, other types of programs are also TSRs, although their operation is less obvious. SmartDrive falls into this category. It extends the functionality of DOS by caching selected disk drives.

Because these programs effectively become part of the computer's operating system, they have to remain in memory in order to function. Each TSR that is resident in memory steals memory from that available to run foreground applications. This is the problem you're having with Police Quest — the presence of both Stacker and SmartDrive is leaving too little memory for the game to run.

The fact that the other two games still work is simply a result of them having lower memory requirements, and still finding enough room to work with the TSRs in memory.

Although your computer has 4MB of memory, not all of that is accessible to DOS-based programs such as Police Quest. In fact, the amount of memory available to most software is under 640KB, and is usually referred to as conventional memory. The rest is called extended memory, and is only available for use by software which is explicitly designed to work with it, such as Windows. DOS itself also takes some of this memory for its own use, and TSRs also steal from this section of memory.

There are a number of things you can do to maximise the amount of memory available to your programs. First of all, make sure you're using DOS 5.0 or DR DOS 6.0. Both of these operating systems have superior memory management to previous versions, allowing DOS to load part of itself into extended memory. They also allow some TSRs to be loaded into high memory, which lives between conventional and extended memory on 386 and 486 computers. Using both of these features, it's possible to have over 600KB of conventional memory available to DOS programs, and not much less for DOS programs running under Windows.

Before making any changes to your config.sys file, no matter how minor they might be, make sure you have a boot disk for the

same DOS version handy. If not, create one with 'format /s'. Also copy any device drivers that are needed to access your hard disk, such as the Stacker driver (and create a config.sys file on the disk to load those drivers).

The key to getting the most out of this memory management, is the correct setup of your config.sys and autoexec.bat files. Your config.sys file will probably already have the following lines, or something similar. If not, they should be added.

```
device=himem.sys
device=emm386.exe noems
DOS=high,umb
```

The first line loads the DOS extended memory manager, which coordinates the use of extended memory by any other drivers or programs which wish to use it. The driver loaded in the second line is a dual-purpose expanded memory (EMS) and high memory manager. The 'noems' switch disables EMS, which most people don't need.

The 'DOS=' line tells DOS to load most of itself into extended memory, and to enable the loading of things into upper memory blocks (another name for high memory). These three lines set up the framework for a more efficient use of memory than could be achieved with previous DOS versions.

There will also be a line to load the Stacker device driver — that should be the first line after the 'emm386' line above. If that's not where it is in your config.sys file, move it there (the new DOS 'edit' program is a good way to edit plain text files such as this).

If your Stacker driver is loaded with a simple 'device=' line in config.sys, change this to 'devicehigh='. That change instructs DOS to load the driver into high memory (if there's room). Do this for any other 'device=' lines in config.sys, except for the memory managers themselves.

It's best to make these changes one at a time, and reboot the system each time, to make sure everything works as expected. This makes it easy to determine the cause of any problems, should they arise. Because a problem in the config.sys file will often stop the system from booting, make sure you have that boot disk handy.

Stacker (and other similar products, such as SuperStor) add an additional wrinkle to the equation. Because nothing on the compressed drive is accessible until the Stacker device driver is loaded, you have to have copies of the memory managers (emm386 and himem) on the uncompressed portion of the drive.

Assuming that you have a single hard disk (C:), the uncompressed drive will ap-



pear as drive D:, and the files himem.sys and emm386.exe should be copied over to the root directory of that drive before you do anything else. This drive is actually drive C: until the Stacker driver loads, at which point the compressed drive becomes drive D:, and then the drive letters are swapped. A bit confusing, perhaps, but it's the most elegant solution in the long run.

Now for SmartDrive. Unlike previous versions which loaded as a device driver (in config.sys), the version which comes with Windows 3.1 is loaded as a TSR, in config.sys. However, TSRs can also be loaded high, using the new DOS command 'loadhi', thus:

**loadhi smartdrv**

Although SmartDrive uses extended memory to store its temporary copies of disk contents, the program itself resides in conventional memory. The loadhi command makes it load into high memory instead, provided that there's enough room. You can also use these commands to load other things high, such as mouse drivers, network software, and anything that gets loaded once and then forgotten.

This should solve your memory problem with Police Quest, and let you run it with SuperStor and SmartDrive both active.

## Over protective?

*A friend recently bought a 33MHz 486SX system, and we were recently going through the CMOS setup. It has password protection built in, so I wanted to try turning it on. He told me not to because he had already tried it and had locked himself out of the system.*

*I didn't believe him, and so I tried it. First I enabled it with one menu, and then went to another menu to change the password. While trying to change it, it first asked for the current password. Since we had already reset the entire CMOS from the last attempt at using the password protection, I assumed that there would be no password, so I just entered another one.*

*Upon boot up, sure enough, it asked for a password, and the one I thought I had just entered did not work. We had to reset the CMOS again, and turn the password protection off, since we didn't know the current password. My friend has contacted the people whom he bought the system off, but they said they didn't know what it was either.*

*What is the use of having a reset on the CMOS values if it does not reset the password, and how is the old password remaining current if the CMOS has been reset? Nothing is mentioned about using the password protection in the manual.*

**Peter Simpkin**

That's a good question — I have to say that BIOS password protection, which prevents you from booting up until you type in the password, is little more than a gimmick. The level of security which that offers is no better than most machines achieve through a simple key lock. In fact, I think the latter is better, as most people lose keys less easily than they forget passwords.

What weakens the BIOS password system even further, is the ease with which it can be disabled. You don't mention how you erased the CMOS contents and disabled the password — whether it was achieved through the CMOS settings, or whether you just disconnected the battery. Either way, if you could disable it without the password, so can somebody else.

It's sad that your dealer doesn't know how to set the password either. One would expect dealers to at least know how to use the features of the machines they're selling. Unless, like I, they don't consider a BIOS password of much value. My advice is to forget about it, and use the key switch if you want to keep people out — it works just as well.

## XT terminal

*I have a 386DX running at 40MHz, with a super VGA monitor, 4MB of RAM, and two hard drives. This runs DOS 5.0 and Windows. I also have an old CCS brand XT running at 10MHz, with two 360KB floppies, no hard disk, and a CGA monitor.*

*I was wondering if you could tell me if it is possible to set up the XT as a dumb terminal to access the programs and files on my 386. The XT would be in the next room, approximately five metres from the 386.*

*Could you tell me if the XT would be capable, and if so, the most economical way to link the two computers, and what type of equipment and software I would need to do it? The XT is hardly worth selling or upgrading, but I am hoping this may be a way to make use of it.*

**Kerrie Gray**

Your dilemma is one which arises quite frequently in this industry, with computers rapidly becoming technically obsolete well before they show any signs of failure.

While connecting your XT to the 386 as a dumb terminal is certainly possible, you won't be able to utilise either machine to its fullest potential. Also, because dumb terminals only operate in text mode, you'll only be able to run applications which work in text mode, and these are becoming fewer

and further between by the day.

You'd also need to run a multi-user operating system on your 386, in place of DOS. There are several such products (Alloy's MultiWare, PC-MOS, and others), but they're not cheap, and won't allow you to run Windows on the 386, at least, not in enhanced mode.

A better solution is a simple network, that would leave both machines to operate independently, while both sharing the hard disks on the 386. The 386 would become what is known as a non-dedicated server, meaning that it allows the other machine to access its hard drives, while still being able to run software locally as well.

There are several peer-to-peer networks on the market now, but most of them are probably overkill for your application, and you might not be able to justify the price. Fortunately, there is an inexpensive network that would be perfect for your application, designed and manufactured in Australia by Program Development Systems, (03) 563 3063.

Called the Murrumbena Network System, it allows up to eight computers to be connected to a common non-dedicated server. Printers and disk drives attached to the server can be accessed from any of the other computers on the network. By making your 386 the server, and connecting the XT up as a workstation, you'll be able to use both machines, without adversely affecting the performance of either. And a two station network such as you require will set you back less than \$500.

## Where did the CMOS go?

*A computer owned by some friends of mine died on them one day. I'm no expert, but it sounded like a hard disk failure of some sort. After having a technician in, and spending big dollars, they were informed that the CMOS had gone. Possibly due to power surges caused at the time by storms in the area.*

*What causes a computer's CMOS to go? How can the average computer user prepare for this occurrence, and reset the CMOS themselves without outlaying heaps of money? Is it as easy as entering the setup program and recording all the specifications? I have OS/2 on my D: partition — would this affect my CMOS settings at all?*

**R. Dodson**

By 'going', I presume you mean that the



## Hardware basher's Bible

THE WORD 'BIBLE' tends to carry a connotation of authority, and this book is certainly authoritative! At over 1000 pages, it's not light bed-time reading, but then it doesn't set out to be a book to be read from cover to cover. Rather it's a reference work, aimed at people who deal with PC hardware on a regular or semi-regular basis.

The author doesn't confine himself to describing the technical features of the PC as it appears today, but also provides some insight into the issues which shaped the PC's present-day form. Of course, some of this is conjecture on the author's part, but coming from somebody who's been writing about the industry as long as Winn Rosch has, most of it will be pretty close to the mark.

The book literally covers every aspect of the PC's hardware, from the different processors and bus designs to the case design, and the mounting rails on floppy

disk drives. Rosch discusses all of the common (and most of the not-so-common) hardware components you're likely to find in a PC compatible.

On the subject of mass storage, Rosch covers both hard and floppy drives in depth (there's a chapter on each, as well as an introductory chapter on mass storage generally) and even odd-ball systems, such as Zenith's ill-fated 2.5-inch floppy drive, are covered.

Optical drives (including the Floptical which by rights is more of a floppy than an optical drive), and tape drives also rate a chapter each, though these are shorter in length than those on the more mainstream storage technologies.

Rosch doesn't look at the PC in isolation, either. The short chapter on parallel ports is immediately followed by a chapter on the devices that most people connect to this port — printers. Similarly, modems

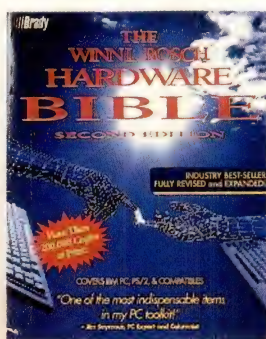
are discussed in the chapter after serial ports. He also looks at display adapters and monitors, and even has an interesting diversion on the ergonomic and safety aspects of monitors. This would have to be the most well-researched and balanced discussions of this subject I've seen.

Throughout, he continues to fill the reader in with background historical pieces, which gives some order to the apparent chaos that seems to be the basis of the computer industry.

If you're looking for a broad, yet in-depth reference for PC hardware, Rosch's book is hard to go past. I can honestly say I don't know of any other book which provides such a wealth of information on the PC family. The book is well researched, well written, and (importantly for a book of this size) well indexed.

I'd recommend this book to anyone who wants to know not only what makes the PC tick, but *why* it ticks.

*The Winn L Rosch Hardware Bible*, Winn Rosch, Prentice Hall ISBN: 0-13-932260-4, 1060pp, \$71.95.



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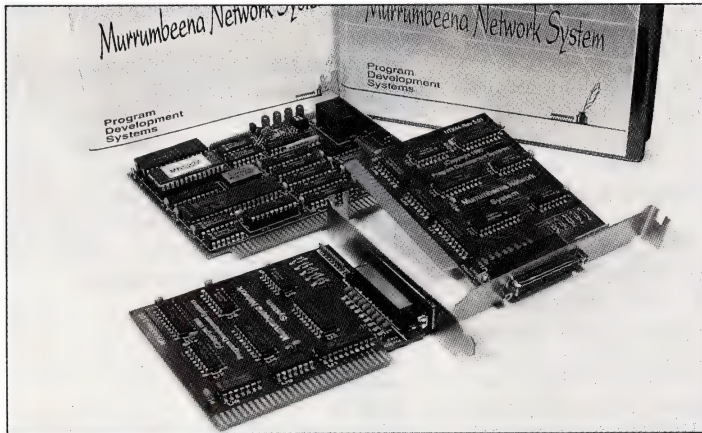
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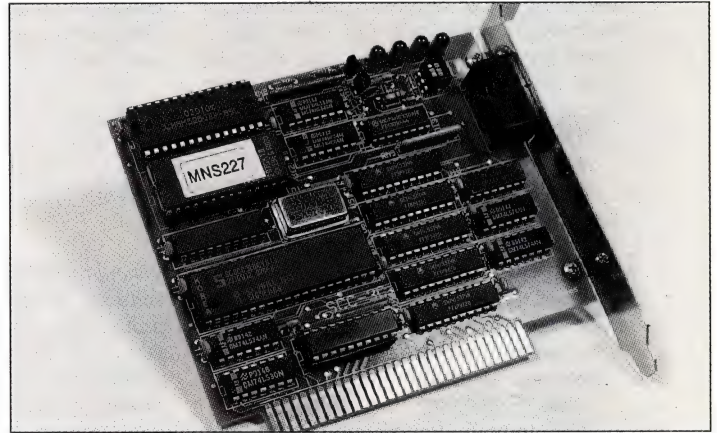
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## Rod Irving Electronics/Software Express Tech Tip of the month

### Automatic virus protection

I HAVE WORKED out a couple of ways for transparent virus protection. What is required is McAfee's Virus Scan, or any other command line-driven virus scanner, and a copy of 4DOS or NDOS (shipped as part of the Norton Utilities).

The reason this whole setup is possible is by 4DOS' ability to use aliases. It isn't totally foolproof, but I find that it does the job. First, make sure that the Scan directory is in the path statement in autoexec.bat. Then add the following line to the autoexec.bat file:

```
scan C: /nomem /maint
```

This will scan the boot sector of your hard disk for viruses as soon as possible. The nomem option stops memory checking — if you want to have the memory checked, then just leave out this switch. Next, add an alias statement to your autoexec.bat file, where alias.fil is the file where your aliases are stored:

```
alias /R alias.fil
```

Now to your alias file, add the line:

```
COPY = SCAN %1 /NOMEM ^
```

```
*COPY %1 %2 %3 %4 %5
```

This first scans the drive that you are

copying from, and then copies the files. The asterisk in front of the copy command is to stop it from recursively running the copy alias. The variables %1 to %5 should account for any options you wish to add to the copy command. This method is not foolproof, as I said, but if a virus is found, delete the copied files and use McAfee's Clean (or something similar) to delete the virus from the source file.

All of the software mentioned above (with the exception of the Norton Utilities, which is commercial) is available from the Apache BBS, (02) 603 7483, on-line Fridays and Saturdays from 4pm to 8am.

**Marcin Szczepanski**

*I should point out that McAfee's anti-virus software is available from many BBSes around the country (many of those list the fact in the BBS Registry, which can be obtained from our office just by sending us a formatted DOS diskette). You might also want to try an Australian shareware product — Claude Almer's NBY virus checker, also available from many BBSes. 4DOS is also widely available.*

CMOS forgot all of its settings. It can certainly look like a hard drive failure, since some of the parameters stored in the CMOS RAM contain information about the hard disk in the system. If that gets lost for any reason, the machine won't be able to boot from the hard disk. The CMOS also stores information about the floppy drives, but that's not as critical, and the floppy drives will often operate even with incorrect CMOS data.

The loss of the hard drive parameters is made even worse by the almost universal use of IDE hard drives in modern machines. These drives have far more than the 17 sectors per track of older drives, which most standard BIOS drive types were setup for. This means that if the CMOS forgets the drive type, you not only have to remember the type number, but also the parameters for the drive, such as the number of cylinders, heads, and sectors.

The CMOS chip which holds all this vital data is really just a small RAM chip (with a few additions, such as a clock and calendar circuit). All RAM needs some power in order to retain its contents, and in the case of the CMOS chip, this power is provided by a

small battery, when the power to the machine is turned off. If the battery should start to go flat, or if the connections to it become dirty, the data in the CMOS RAM can become corrupted or lost.

The easiest way to guard against this is, as you suggest, to note down the contents of the CMOS (through the setup program) before you lose them. Modern BIOSes have more than one CMOS setup section — the normal one, covering drive types, and an advanced section, which retains settings for on-board caches, memory allocation, and other non-standard items. Make sure you note down all the settings in all sections of the setup program, otherwise the performance may not be optimal when you reset them.

If this all sounds a bit tedious to you, then there are utilities around which will store all the CMOS values on a floppy disk, and then allow you to restore them if and when the CMOS fails. One such product is Knowsave, available from Cottonsoft, (07) 344 4452. I've used this program on a 386 I have which has the habit of losing the contents of its CMOS RAM with monotonous regularity.

Of course, if your CMOS forgets its configuration too often, it's probably time you looked around for a new battery.

### More disk compression ideas

*Previous pieces on cheap disk compression ('Disk Compression on the cheap' in the July 1992 issue, and 'Tech Tips' in September 1992) discuss various ways of deleting the unzipped files upon completing the application. The original used dx.com, and the second by changing the attribute of the zip file, and deleting the remainder by using the DOS 'del' command.*

*A simpler way to delete the unzipped files upon completion is to use the '-m' switch in PKZip, in concert with the '-u' switch — that is, 'PKZip filename -mu'. The '-m' switch deletes all the source files after the '-u' switch has updated the zip file with new or altered files. I have been using this method for some time now, and it works like a charm. The modified batch file appears as follows:*

```
rem Golf.bat
cls
cd \games\golf
pkunzip golf
golf /3
pkzip golf -mu
cd \
exit
```

*I also have a method to pack low-usage applications which often include subdirectories. This requires using a couple of the other clever switches in PKZip. For instance, say I have an application called 'AP1', which has a directory called 'AP1', and a sub-directory called 'AP2'. To pack all this away initially, I change to the AP1 directory, and issue the command:*

```
pkzip AP1 -rP
```

*The '-r' switch recursively packs sub-directories (in this case, AP2) along with the files in the main AP1 directory, into a zip file called AP1. The 'P' puts all the tree information into the zip file as well, so that when it is unzipped, it can reconstruct the directory tree. So my batch file to run AP1 looks like:*

```
cd \AP1
pkunzip -d AP1
AP1.exe
pkzip AP1 -rPmu
cd \
exit
```

*I have a number of large, low-usage applications which are set up to run from Windows. Rather than remove them from the disk, I zipped them, and modified the Windows group items to call the batch file. Whilst this certainly adds time to starting the application, it's far more convenient than the alternatives.*

**Bob Bellini.**



Phil Stafford's approach to cramming files onto a hard disk (YC July 1992) is also mine. However, he omits to mention that each of his batch files consumes 2KB of disk space, even if (as in his example) the batch file has less than 100 bytes, so the net saving will be less than expected.

The 4DOS command processor provides an easy solution to this, using aliases, and at the same time, makes `dx.com` redundant — a further small saving of disk space.

Aliases, in their simplest form, allow you to abbreviate frequently-used long commands to one or two keystrokes. For example, 'copy \*.a:' might become 'CA'. 4DOS aliases can be multi-line batch files, and they can be activated by any of the 48 function keys (although you'll need a template if your memory is as bad as mine). I have some 80 4DOS aliases, using a total of 2KB of RAM plus one 2KB disk file from which they are loaded at boot-up. 4DOS is available as shareware, and has many more advantages not listed here.

Another thing worth looking into is the options available in PKUnzip. Some of these allow operations on a zip file without decompressing it. For example, PKUnzip-CM\*.doc allows you to page through all of the document files in a Zip file, on screen. My 'utils' directory contains more than 100 utilities, for most of which the instruction files are much bigger than the executable files.

So I have all of these document files in a file called `util.doc.zip`. On the rare occasion I need to check how to use a utility, a little time is needed to scan through the zip file with the escape key, until I find the item required. That alone saves about half a megabyte on my 20MB disk.

E S Webber

## Hiding bad sectors

I read with interest the letter from John Chong in the October 1992 issue. I have a Samsung 286 laptop with 1MB of RAM and a 32MB Seagate SCSI hard disk, and MS-DOS 5.0. I too had the multiplying bad sector disease on my hard disk, which had bad sectors from new (which wasn't a problem). My situation was different, however, as the computer didn't justify the expense of a new hard disk, and I was not ready to replace the computer at this time.

Norton Disk Doctor repaired the problem to some extent, but I was still losing data, as programs would unexpectedly crash. I found that the problem was in sectors next to existing bad clusters, which were all in one area near the beginning of the hard disk.

Getting sick of all this, I backed up the hard disk, low-level formatted it, and created two partitions, using DOS' Fdisk. This gave me a C: drive of just 5MB (and all the bad sectors), and the remainder of the disk as D:. The 'picture' of the disk revealed by Norton Disk Doctor makes this easy. DOS of course will only install on C:, so I dealt with corrupted files by renaming them, and copying the original file from the MS-DOS 5.0 floppy to another of the disks.

For example, renaming `Smartdrv.sys` to `Sd.sys`. To replace the file, look at the `Packing.lst` file, put the appropriate disk in the A: drive, then type:

```
expand smartdrv.sys _
smartdrv.sys
```

This has the effect of keeping suspect sectors unavailable, but not interfering with your useful files, and you (hopefully) only have to do it once. This way you can optimise drive D:, which you should not do with drive C: in this state, as you will only put new files on suspect sectors. With C: being almost exclusively read-only files, I have found this to be quite a stable configuration.

John S Molloy

Since you obviously have the Norton Utilities, there's an even more certain way of stopping DOS from using doubtful sectors. While Norton Disk Doctor is a useful tool for diagnosing and repairing logical disk problems, it's not the best way to solve physical problems, such as bad clusters.

Recent versions of the utilities have another program called DiskTools, which allows you to manually mark sectors as 'bad'. You can use this to manually mark out sectors that you know are a bit dodgy, even if DOS and other utilities seem to think there's nothing wrong with them. With older versions of Norton's you can do the same from within the main Norton Utility program.

ing the Alt key between characters.

The ASCII codes for `testproc.com` are: 49, 192, 180, 112, 80, 157, 156, 88, 136, 224, 180, 76, 205, 33.

The codes for `testscr.com` are: 30, 49, 192, 142, 216, 160, 73, 4, 31, 180, 76, 205, 33.

**This has the effect of keeping suspect sectors unavailable, but not interfering with your useful files.**

## Floppy mismatch

I have a 16MHz 286 with 4MB of RAM, a 1MB SVGA video card, 1.44MB and 1.2MB floppy drives, and 20MB and 40MB hard drives. All of these drives are run from the same controller with no problems at all. I am using DOS 5.0.

Recently, I added an extra floppy disk controller card, in order to add a second 1.2MB floppy drive to my system. The card has been configured to recognise the extra drive, and my `config.sys` file has the following statement added:

```
device = driver.sys
/d:2/s:15/t:80/f:1
```

On boot-up, the machine recognises the extra drive as drive F:, and says that it has been installed as a 1.2MB drive. My problem is that I cannot read, write, or format a 1.2MB diskette in this extra drive, but it will behave perfectly with a 360KB diskette. I also had this problem when using DOS 3.1. I would be grateful if you might be able to tell me how to get this external drive behaving like the 1.2MB drive it is supposed to be.

Stephen Heusz

For all the trouble controllers for extra floppy drives cause people, it's fortunate that not more people use them. From your description, it sounds like there is a communications problem between the second controller and the drive.

I suggest swapping components around to pinpoint the problem more precisely. Try switching the cable with the one used on your good drives, to see if the problem persists, or if it moves with the cable. Also try swapping the two 1.2MB drives to the other controllers, again looking to see if the problem is associated with the drive or the controller.

The floppy cable has a signal which controls the drive's head current, to select between double-density and high-density modes of operation. If there is a problem with this signal, the drive will have trouble with one or other type of disk.

If the problem persists, and doggedly stays with the same drive letter, then the fault must lie with the new controller. Double-check the settings on the controller, to make sure the drive is set up properly. You might want to try connecting your 1.44MB drive up to this controller instead (and configuring the controller correctly, of course), putting both 1.2MB drives on the primary controller.

Failing that, it's time to find another controller, I suspect. □

## Tech tip fix

IN LAST DECEMBER'S Tech Tip of the Month (page 102), there were instructions to create two small COM files, but a few important details were left out. The funny looking characters are entered by holding down the Alt key, and with the key held down, typing in their ASCII codes, releas-



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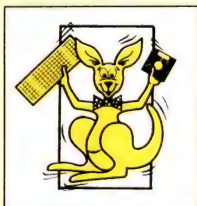
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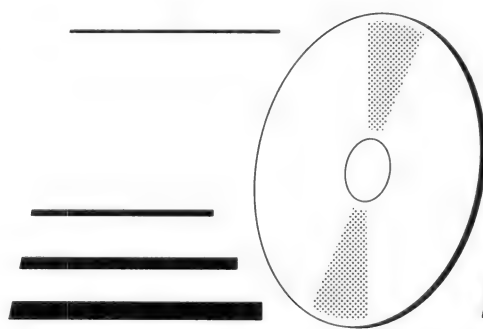
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**ERIC HOLROYD**

# A break from reality

**H**ERE'S ANOTHER NICE batch of software which caused me to reflect on just how far the PC leisure industry has progressed in the past couple of years. Knowing that many PC owners use their machines purely and simply for playing games, I salute the various publishers for pushing their standards ever upwards to support them. I also know that many 'serious' users snicker at games players, but it's not too long ago that a certain Solitaire card game had a 'spreadsheet' button that allowed the person playing the game on company time on the office PC to flick a dummy spreadsheet display on screen to avoid getting sprung as the boss walked by.

I use my own PC for a variety of jobs, like writing, music, databasing and so on, but whenever it all gets a bit much and I need a break from reality for a while, I boot up one of my favourite games. I've played almost 1600 games of TriPeaks in the Windows Entertainment Packs and have won \$10,490 so far. Anyone out there doing any better? I have several other favourite games too (so have many of the readers who write in to us) so it seems fairly obvious that the software publishers are doing something right! How soon before we get Virtual Reality on the home PC I wonder? Maybe not all that long...

Sharp eyed readers will notice that there's no New Releases column this month. It's unfortunately had to be discontinued due to a very difficult information gathering process. We're interested to know if you'll miss it.

## Strategy Shadow President

\*\*\*\*+

### Joint Game of the Month

**TYPE: RP/SS/GA \*\*\*\*+ GFX: VGA \*\*\*\* SFX: AL/SB/SIM/PAS \*\*\*\*+ X-FACTOR: \*\*\*\*+**

**Review copy from Directsoft (02) 489 7853. RRP: \$99.95.**



THE PROGRAMMING team who put this together must have been psychic! They couldn't possibly have written *all* of this game after the collapse of the Berlin Wall and the decline of communism. Be that as it may, they've built a beauty of a game which puts you in the hot seat as US President. It kicks off on June 1st 1990 with the Wall about to fall and the Middle East set to explode. A Soviet coup is unheard of, yet all these things are about to happen and it's only your first day on the job. Luckily you have seven advisers to help you (CIA chief, Defence boss, Secretary of State and so on) but you'll still make all major decisions yourself.

An on-line Tutorial helps you get started with your Action Command System which covers five major areas: Social, Economic, Political, Military and Nuclear decisions. You have instant access to the CIA World Factbook (over 600 pages of info on 150+ countries) and get regular World News updates to keep you informed on global developments: The Shadow Network, an intelli-

gent environment that tracks over 30,000 world variables, is a great help too. This is a very absorbing program with terrific GFX and SFX and each game is unique. Up to nine games may be saved to disk for later replay.

## Bridge Master

\*\*\*\*

**TYPE: CARDS \*\*\*\*+ GFX: SVGA \*\*\*\*+ SFX: AL/SB/SIM/ROL \*\*\* X-FACTOR: \*\*\*\***

**Review copy from Electronic Arts (075) 911 388. RRP: \$79.95.**



**YET ANOTHER** Bridge simulation, this time supporting SuperVGA graphics and digitised sound. Not being conversant with all the nuances of Bridge I obviously couldn't comment on how well it played the game. It did seem to have all the wanted features though, such as the choice of Bidding Conventions

like Blackwood, Gerber, Pre-emptive Bids, Stayman and so on. As the game is for 1 to 4 players (modem support too!) and offers four difficulty levels of play it seemed to me to offer a great deal of flexibility. Add to that the option to 'Set Player Personalities' which determines how your computer opponents will play (Active, Passive, Trump Waster, Trick Grabber and so on) and you can see how each rubber would play quite differently.

Graphically very good, with many tabletop and card back options, and the music came over very nicely on my ROL setup. There's a choice of Classical, Pop or Jazz too. A print-out option gives you hard copy of the hands and bids, and a set of VCR-type controls lets you replay bidding. Onscreen Help and Play Analysis lives up to the program's subtitle of The Perfect Partner.

## Spear of Destiny

\*\*\*\*

### Joint Game of the Month

**TYPE: ARC/GA \*\*\*\* GFX: VGA \*\*\*\*+ SFX: AL/SB \*\*\*\* X-FACTOR: \*\*\*\*+**

**Review copy from Packtronics (02) 748 4000. RRP: \$89.95.**

**AFTER READING** the controversial readers letters in previous issues about the Wolfenstein 3-D game I can't help but wonder what they'll make of this one. The theme is once again Nazi Germany (and strangely enough the current Neo Nazi riots are on TV news as I write) and there's just as much violence and bloodshed as in the original. However, the title screen proclaims 'This program is voluntarily rated Profound Carnage', which I interpret the same way as car park signs saying 'Park at Own Risk'. The story-line has Adolf Hitler coveting the Spear of Destiny, which was





the weapon used to pierce Christ's side whilst on the cross. Legend has it that no man can be defeated whilst in possession of the spear. Taken from its Versailles museum case to Hitler's Germany it becomes his most prized possession. Unfortunately, he starts to covet all Christianity's legendary icons to gain even greater power. Enter your good self and the forces of might and right to crush him forever.

Spear has the same stunning 3D GFX as Wolfenstein 3-D and a similar fast moving style of play. True, there's much onscreen blood and gore (so has Bugs Bunny), but I didn't feel much different shooting at cartoon Nazi guards than I do at Space Aliens or other pixellised punks.

It's a game, for heavens sakes! And a damn good one at that! It'll be a best seller, deservedly so, and may just leave the player with a bad impression of the Nazis. Isn't that why we learn history at school, so that it may never happen again?

### Home Alone 2 — Lost in New York

\*\*\*\*

TYPE: ARC/GA \*\*\*\* GFX: VGA \*\*\*\* SFX: AL/SB/SIM/ROL \*\*\*\*  
X-FACTOR: \*\*\*\*

Review copy from Electronic Arts (075) 911 388. RRP: \$79.95.



HARRY AND MARV, that rascally duo of burglars known as the Wet Bandit Gang are chasing young Kevin McCallister through the streets and back alleys of New York. Seems our hero was to holiday in Florida with his folks, but somehow managed to get on the wrong plane and ended up in the Big

Apple. Digitised pics taken from the actual movie help set the story-line which has the chase meandering through his uncle's big old Brownstone house via Central Park, the Plaza Hotel and the Playland Toy Shop in a series of fast moving and very funny chases. Kevin uses banana peels, garbage can lids, empty bottles and so on to trip up the duo and once at uncle's there are untold traps into which he can lure them. The eventual idea is for Kevin to lose the Wet Bandit Gang permanently and meet up with Mom at the Rockefeller Center's Christmas tree. I liked the multi-dimensional action, comedy bits, smooth scrolling GFX and good sound. Game control was generally good, and the game played very well with my StarCursor joystick.

### Caesar

\*\*\*\*

TYPE: RP/SS \*\*\*\*+ GFX: VGA \*\*\*\* SFX: INT AL/SB \*\*\*+  
X-FACTOR: \*\*\*\*

Review copy from Directsoft (02) 489 7853. RRP: \$89.95.

ENE VIDI VICI, says the opening screen — I came, I saw, I conquered. Famous words from Julius Caesar, and this game is all about his great Roman Empire. On the same high level with Microprose's Civilization, you're an empire builder able to construct huge cities then link them to others with Roman roads. You



can build cross country walls (like Hadrian's) plus amphitheatres, forums, temples and so on. Your cities are peopled with animated citizens and your fighting legions are animated in combat situations too. You have seemingly unlimited resources of slaves, legions and wealth and will be judged on the four criteria of: Peace, Prosperity, Culture and Empire. If successful you get a promotion

and if you're a real hotshot you may even become Caesar.

The documentation is good and a 'technical supplement' explains the player interface icons which you click to build a barrack, hospital, temple and so on in your choice of computer generated Province. As these are all different the game has a wealth of flexibility. A big plus is that it links with Cohort II, the miniature-style combat game, so that battles are fought using its soldiers and features for extra gaming thrills.

### Risky Woods

\*\*\*\*

TYPE: ARC/GA \*\*\*\* GFX: VGA \*\*\*\* SFX: AL/SB/ROL \*\*\*\*+  
X-FACTOR: \*\*\*\*

Review copy from Electronic Arts (075) 911 388. RRP: \$69.95.



EXTREMELY GOOD ROL music and great cartoon style GFX enhanced the fast moving and smooth scrolling gameplay of this hugely enjoyable arcade adventure. Of the same genre as the Bitmap Brothers' Magic Pockets, but with many different twists and plots, and I found it just as much fun to play.

I think it must have been programmed in Germany as the words lost a little in translation! As the warrior Rohan you're battling your way through murky caves and risky woods (hence the title) and face such monsters as 'stomping skeletons' and 'face-gripping flying fiends' (I loved the German words on the packaging for this one: 'Geflugelte Ungeheuer mit schrecklichen Fratzen'). There are over 20 such monsters over 12 difficulty levels covering 150 beautifully drawn screens. You traverse eight landscapes knocking out the monsters with weapons like axes, fireballs and chains provided by power tokens you collect. There's treasure too. The object is to fight your way past all the minions to the evil Draxos, wipe him out, and free some hostage monks. I didn't quite make it, but I did have a lot of fun.

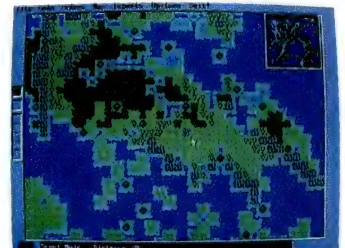
### Battles of Destiny

\*\*\*\*

TYPE: SS/WAR \*\*\*\* GFX: VGA \*\*\*+ SFX: AL/SB \*\*\*\*+  
X-FACTOR: \*\*\*\*

Review copy from Directsoft (02) 489 7853. RRP: \$79.95.

A 'GLOBAL CONQUEST' simulation for up to four human players or one human and three computer opponents, this is a futuristic game featuring some quite startling artificial intelligence. With 20 or so beautiful worlds to conquer and rule, and nine levels of difficulty, I found it immensely interesting and challenging. There's a Map Editor to build your own world and several terrain types are available (Grass, Hills, Mountains, Swamp and so on) and both your maps and player histories may be saved to disk.



As the title suggests, it's all about fighting to ensure your future. The known universe has erupted in wars after a millennium of peace and the weapons factories are working overtime. It's your job to capture these production centres by first of all conquering the relevant world in Air, Ground and Naval combat.

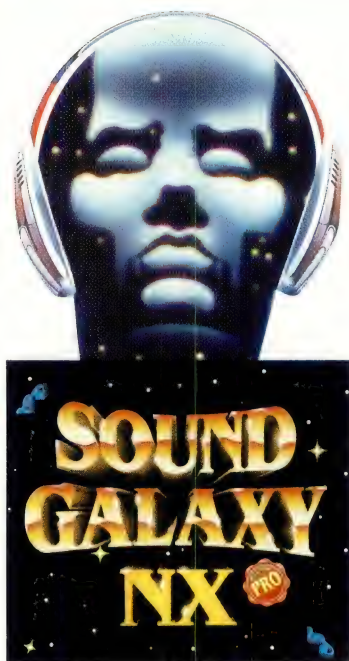
A nice feature is the 'ranged artillery' which lets you destroy an installation at great distance. There's a tradeoff though, in that it's hard to defend your artillery positions, so strategies are all important. The very popular modem play feature is supported and there



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are multiple ways to start any game, thus ensuring variety and interest.

## Conquered Kingdoms

\*\*\*\*

TYPE: RP/SS \*\*\*\* GFX: VGA \*\*\*\* SFX: AD/SB \*\*\*++ X-FACTOR: \*\*\*\*

Review copy from Directsoft (02) 489 7853. RRP: \$79.95.



SET IN MEDIAEVAL times in the Kingdom of Cascatia, this is one of those 'conquer and occupy' games rich in tactics and strategy. There's a nice choice of character units: Basic has Cavalry, Archers, Swordsmen, Catapults and so on, whilst Fantasy has Wizards, Dragons, Phantoms and Gargoyles. I've seen

this type of choice before, but never the opportunity to use both at once as in Conquered Kingdoms.

The graphic scenes were very nicely drawn and the general scrolling around of the battle maps was quite smooth, with good control by mouse. A random 'Map Generator' allows countless battle scenes and there are several full campaign conquests to fight, or you may choose just a single battle. The software keeps a full game scoring history and your campaign successes could gain you officer status by promotion. You may play against either the computer or a human opponent and once again there's a modern option. Twenty one difficulty levels and nine splendid scenarios offer continuing interest and your objective in all this is to become King of all Cascatia. □

## Key to abbreviations

\*\*\*\*\* - Excellent \*\*\*\* - Very Good \*\*\* - Good  
\*\* - Fair \* - Poor

ADD - Dungeons & Dragons

AL - Ad Lib Card

AO - Adults Only

ARC - Arcade Action

BRD - Board Game

DRV - Driving Game

ED - Educational

FAN - Fantasy

GA - Graphic Adventure

GFX - Graphics

GU - Gobble Up

INT - Internal Sounds

LW - LaserWave Card

LP - Ladders/Platform

ROL - Roland Sound

RP - Role Playing

RS - Real Sound

PUZ - Puzzle Game

SB - Sound Blaster

SFX - Sound Effects

SF - Science Fiction

SIM - Simulation

SPA - Space Adventure

SPT - Sports

SS - Strategic Studies

SU - Shoot Up

WAR - Military Strategy

NB: Our reviews list the software's maximum graphic capabilities. CGA/EGA/MCGA/Tandy users should call the listed supplier for details.

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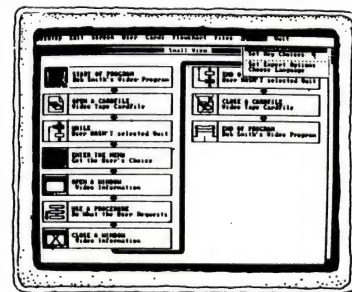
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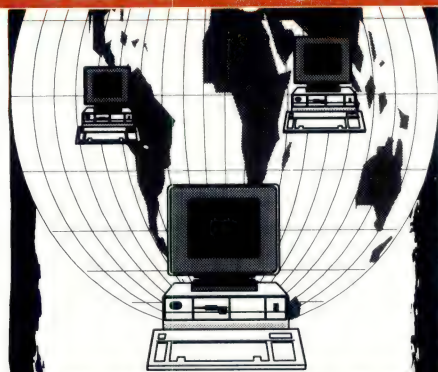


# bjectives

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# NEW CONNECTIONS



EDITED BY: MARK CHEESEMAN

## DosFax Facts

**Roy Hill takes a brief sojourn back to the DOS command line to do some faxing, and finds it's something of a backwards step.**

DELRINA TECHNOLOGIES, the maker of WinFax, has released a DOS based product, for those who have not yet made the migration to Windows. Let me say at the outset that the product works — I have sent and received faxes using the program on a variety of computers, with pleasing results. Let me also say 'Thank goodness for Windows'. I had a very interesting discussion with a gentleman recently, who said: 'Anyone who uses WIMPS is one.' He firmly believed that DOS is the only way to go. I believe that I have two uses for computers — one where I play around with software and hardware and one where I simply want to get something done, such as type an article or send a fax. When I am doing the latter, I want to do it in the most efficient manner and as far as I am concerned Windows is it.

To run DosFax, one first installs the program into a directory on the hard disk and then answers some questions about the fax/modem being used, the com port to which it is attached, and so on.

Delrina has done an extremely creditable job of emulating their Windows product in a DOS environment. The menus and options screens are identical. To operate the program, one loads two TSRs, the first one, Faxcap, is a TSR that enables printer output from DOS based programs to be redirected to the fax converter, and the second, Faxcom, is a TSR that handles all the fax communication features.

I tried DosFax on three different computers and found exactly the same problem on all three. Faxcap and Faxcom are incom-

patible when trying to receive faxes. To satisfactorily receive a fax, I had to unload both the TSRs and then re-install Faxcom on its own. I could then receive faxes quite satisfactorily. The problem was quite independent of whether the beast sending the fax to me was a genuine fax machine or a fax/modem.

The other way of receiving faxes is to run the DosFax program itself, which is not a TSR and therefore means that you can't receive faxes whilst running your favourite DOS-based word processor. You must exit from whatever program you're running (remember, DOS is only single tasking), fire up DosFax and then use the menu to go into Manual Receive mode. To send a fax in this manner requires that the file to be sent is converted to a proprietary .fxs format. This is done by running the Faxcap TSR and directing output from the printer to a file. DosFax can then combine any .fxs files into a single fax transmission. Performing all of the above can be inconvenient (to say the least) but these are the limitations of running in DOS.

The other problem encountered was the capture program's manner of operation. I decided to send some text files to my fax/modem at work, using a list of BBS files I had stored from using Telix. The capture program creates a series of files, of which you provide the first five letters and it provides the remaining three as sequential digits (for example, TELIX001.FXS, TELIX002.FXS, and so on — exactly the same as WinFax). The document I was using was ten pages long and I had some trouble faxing the pages, so I did everything again, and again, *and again*. The end result was

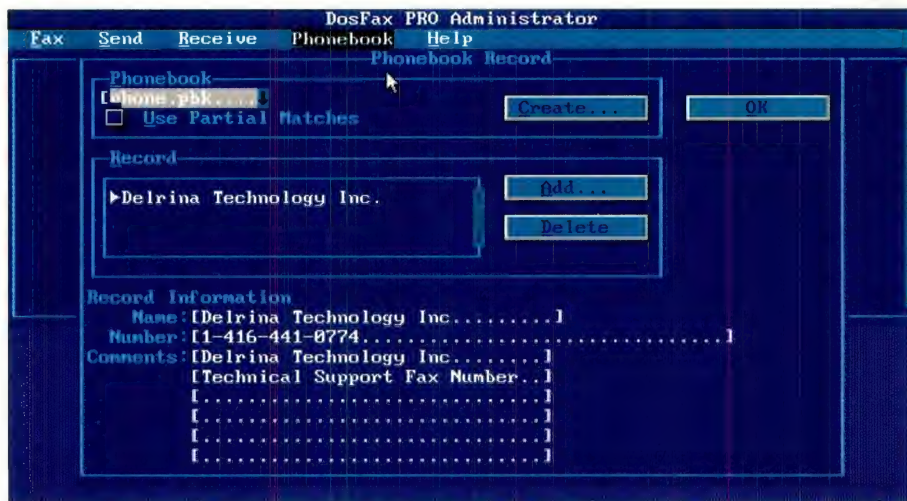
that each new set of ten pages was incremented after the last lot, so that when I eventually got things working, I was going to be sending 50 pages — the same ten, five times. This is another beauty of Windows — it protects users from themselves.

Another annoying feature is the message screen that pops up when the Faxcom TSR is loaded. The message says 'Receive/Abort Hotkey : SC-VR', which, translated, means 'Shift + Control + R?' — in fact it means 'Shift+Control+Enter'. I would rather see no message than one that is either wrong or ambiguous.

DosFax allows users to share the same 'phonebook records as WinFax, although why one would need to do this is more of a question. I guess someone with a DOS only machine at work and a Windows based machine at home would want to be able to swap 'phone book records.

I tried operating a normal DOS program (Norton's DOS Editor) to edit a file whilst a fax was coming in. The Faxcom program allows a constant monitoring of the incoming fax and this appears as a message in the top right-hand corner of the screen. I think that this is an extremely useful feature to have. If a fax comes in when the computer is unattended, the only way to know that you have received one is to examine the 'Receive Log' from the appropriate menu.

I also tried faxing the output of what I was editing (see above). To do this requires that you have the TSRs mentioned above already loaded. Pressing 'Shift+Control+C' allows all print output to be redirected to fax files. Two beeps sound to let you know that Print Capture is enabled. This part of the program worked fine, as is witnessed by



*DosFax Pro can share phone books with the Windows version, allowing DOS and Windows users to have a common phone book.*

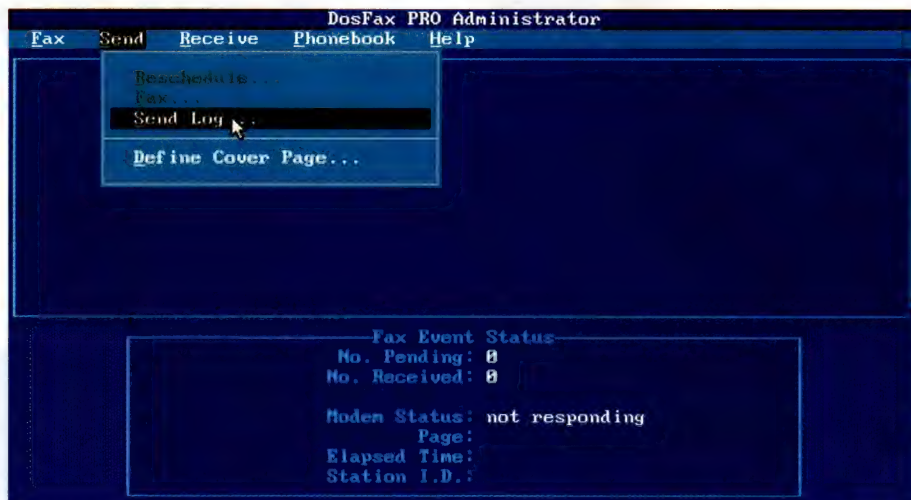


the five sets of output. The next step is to fax the data. This makes use of the second program, Faxcom, and to enable this one presses 'Shift+Control+F'. I was not able to get this work at all, until I removed both TSRs and loaded only Faxcom.

Printing is fairly easy (especially if you have a Hewlett-Packard LaserJet or Epson as your printer). DosFax enables the emulation of either of these two printers, together with their internal fonts. Whilst not as fancy as either Adobe Type Manager or TrueType fonts, they do perform the required function.

### Documentation

THE 100 PAGE (approximately) *User's Guide* is adequate for most users. I would have liked to see a short tutorial on the assembling and sending of a fax all in the one place in the manual. Whilst all the information is there, it requires some searching to put it all together. DosFax is supplied on both a single 720KB 3.5-inch disk and two 1.2MB 5.25-inch disks (the manual says they're 360KB disks, but these were 1.2MB).



The user interface for DosFax Pro is virtually identical to that of its Windows sibling, WinFax.

### Summary

I WOULDN'T BUY DosFax. Personally, I would rather buy Windows and WinFax and save lots of hassles. However, for those of you who still have an XT and don't want to

(or can't) run Windows, then I guess DosFax is reasonable. Interestingly, I found far less trouble using QL2FAX (provided free with some modems) than I did with DosFax.

DosFax Pro is distributed by Bitware,

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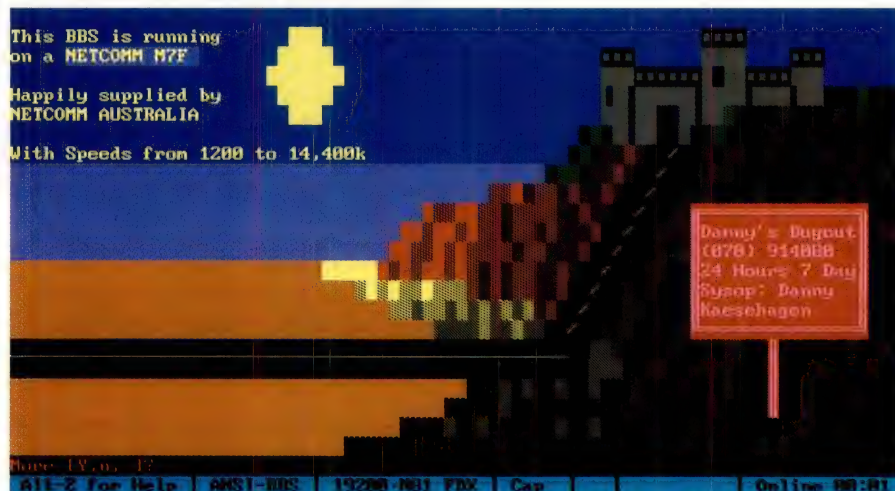
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### Danny's Dugout



MOST OF THE BBSES I write about are in capital cities, and for good reason — there are more BBSES to choose from. But not everybody lives there, and there are certainly boards worth looking at in other places too, so this month I decided to head a bit further afield.

Dug into the Atherton Tablelands near Cairns, you'll find a fellow called Danny, who operates the longest-running (so he says) BBS in the area. It carries support echoes for Maestro and NetComm modems, telecommunications, Pascal and C++ programming, PC technical discussions, christian, space, and sport.

Games players will find plenty of hints (or cheats, depending on your point of

view). Of course, you should try to solve the game yourself first! And once you've cheated your way through all of those, the games area has more games to try out.

Windows users are well catered for with applications, games, clipart, fonts, and bitmaps that you can use as wallpaper. And

(03) 532 2274, and carries a recommended retail price of \$169.

## MicroPhone supports fax

COMBINED FAX/DATA modems are one of the hottest selling communications products at the moment, but you normally need two pieces of software to utilise both functions of these marvellous devices. Software Ventures has recently released a new version of its MicroPhone communication package for Windows — MicroPhone Pro, which adds fax send and receive functionality to the already existing data communications capabilities of the program.

Other new features include MPC multimedia support, allowing MicroPhone Pro to play back sounds from various sources, in-

cluding CD and MIDI files, and to play multimedia movies. What any of this has to do with communications is beyond me, but it's there if you want it. As befits a communications program, it can also send multimedia files to other computers, and scripting allows automatic control of a multimedia presentation.

MicroPhone also supports Windows' DDE, both as a client and a server, allowing dynamic links to be established to other applications such as spreadsheets and databases. Windows' multitasking means that long file transfers can be run in the background, while you continue to work in some other application. Multiple sessions are also supported, just in case you have more than one phone line and modem.

As well as supporting the standard Windows com ports, MicroPhone Pro also supports Novell and NetBIOS networked



if that's not enough, you can grab one of the GIF files from that area and convert it (using a converter downloaded from this BBS) to Windows' bitmap format. If you prefer moving images, there's a heap of Autodesk Animator 'fli' files.

Other file areas carry SoundBlaster modules (.mod files). And for those without sound cards, there are sound files that use the PC's internal speaker, including a great rendition of Glen Miller's 'In the Mood'.

Of course, there's also heaps of general DOS utilities, as well as bulletin board software and utilities, business software, offline readers, and educational software. In short, a bit of everything.

**Sysop: Danny Kaesehagen**

**Phone: (070) 91-4080**

**Max bps: 14,400 (V.32)**

### Lake Macquarie BBS

ONE OF THE BIGGEST (and most active) BBSes in the Newcastle area is the Lake Macquarie BBS, which is a member of more mail networks than you can count on the fingers of one hand. As well as serving BBS users on its three lines, it's also a pretty busy mail hub, so if you can't get on to the board (especially the high speed line), that's probably why.

The board specialises in OS/2 and SoundBlaster files, but there's a lot more than just those two areas. There's also a lot of general DOS and Windows software, from utilities and drivers to communications software, word processors, graphics, business applications, databases, spreadsheets, CAD, GIF images, and lots more. Games are divided up according to which

video mode they require, which is a nice touch.

And ever keeping up with the times, there's even a few Windows NT applications, in a file area of their own. When NT is finally released, there will no doubt be a flood of shareware and public domain software for the new operating system, as happened when OS/2 became generally available.

Most of the message areas on this BBS come not from FidoNet, but the other four mail networks that the board picks up (IntlNet, SBCNet, EzyNet, WorldNet, Coastlink, and Gamelink). So if you're looking for something different to the usual Fido discussions, this would be a good place to start.

There's several music-oriented areas, support for networks, Unix, hard disks, batch file programming, SoundBlaster, OS/2, multimedia, and programming. Or if you've had enough of computers for the day, unwind a bit and chat about movies, cooking, StarTrek, Doctor Who, general science fiction, or literature. If you've had a really bad day, hop over to the abuse echo, and just abuse somebody.

The BBS software running here is also worthy of note — it's Ezycom, an Australian package that is giving RemoteAccess a run for its money around the world. Lake Macquarie BBS is a beta site for the software, and the sysop is actually responsible for the documentation in the latest version.

**Sysop: Matthew Taylor**

**Phone: (049) 56 2853 (multi-line)**

**Max bps: 14,400 (V.32)**

modems, ComBIOS, and other interfaces. A status line at the bottom of the application window indicates the modem status — so you can even keep an eye on internal modems.

MicroPhone supports ASCII, XModem, YModem, ZModem, and Kermit transfers, and an in-built scripting language allows automation of frequently-performed operations, such as logging into online services.

There is also a version of MicroPhone Pro for the NeXT platform, which has all the features of the Windows version, as well as Telnet connectivity, allowing use over IP networks. Now that Canon is finally bringing the NeXT machines into Australia, this should interest a few more people in this country than it would have otherwise.

MicroPhone Pro is distributed in Australia by NetComm, (02) 888 5533, and the

Windows version is priced at \$329, or users can upgrade from MicroPhone II for \$229. MicroPhone Pro for the Next is \$649.

## Hayes' escapism

THE HAYES ESCAPE sequence patent issue seems to be winding up, with the company reaching an out-of-court settlement with Packard-Bell in the United States, for the use of Hayes.

A bit of history. Back in 1985, Hayes was issued a patent for its 'Escape Sequence with Guard Time', that was incorporated into its SmartModem range to allow escaping back to the modem's command mode while it was still online. The patent, known as the Heatherington '302 patent, after Dale Heatherington, the former Hayes employee who developed the technique, was flouted by a number of modem manufac-

turers, who seemed to think that the technique was so simple and obvious that it couldn't be patented.

Hayes successfully litigated against some of the infringing parties, and many others decided that perhaps the licence fee Hayes was asking wasn't that steep after all, and settled out of court. Although Hayes hasn't commented on the size of the licence fee for the use of its escape sequence, it's widely believed to be in the vicinity of US\$1 per modem.

Another group decided to develop their own way of escaping from on-line mode back to command mode, called TIES (Time-Independent Escape Sequence), which is basically the same as the Hayes system, without the guard time. TIES was promoted by modem chip maker, Sierra Semiconductor, which claimed that Hayes' escape sequence could not be called a standard because Hayes had granted an exclusive license to Rockwell to produce chips with the patented sequence built in. While it is true that other chip makers cannot license the technique themselves, modem manufacturers who use other brands of chip can license the sequence directly from Hayes.

The guard time is important so that the modem can differentiate between the normal data stream passing through the modem, and commands given to the modem. The guard time is simply a minimum length pause, which precedes the actual escape character (usually '+') repeated three times, which is then followed by another pause.

The TIES system uses the same system of a character repeated three times, but there is no pause required either before or after the sequence. If the particular character selected (again, usually the '+' character, but it's user-selectable) appears at any time in the data transmission, the modem will immediately escape back to command mode, and the data transfer will eventually time out and abort.

Hayes has mounted an advertising campaign in the US warning users of the potential dangers of the TIES system, and has come under legal challenge itself. Hayes produced a TIES testing disk, which sends every possible escape sequence to a modem, embedded in the data stream, so that a modem that uses TIES rather than Hayes' system, will eventually fail the test.

Multi-Tech — one of the US companies that has chosen to use Sierra's TIES rather than pay royalties to Hayes, last year won a temporary injunction against Hayes, preventing it from distributing its test disk, and also preventing Hayes from using a 'time bomb' metaphor in its advertising — something which Hayes indicated that it



### BBS Registry Listing

BECAUSE OF OUR New Year deadlines, we are unable to publish the BBS Listing of new systems and updates this month. However, the complete listing is available for downloading from the primary electronic collection points in each state — it is about 600KB uncompressed. The primary electronic collection points are: **National** — Australian BBS Registry, (047) 35 6789; **ACT** — Caught in the ACT BBS, (06) 292 8288; **NSW** — 2000 & Beyond AliveBBS, (02) 544 7123; **Vic** — The Offline BBS, (03) 808 4510; **Qld** — The Galaxy GateWay Computer System (074) 26 8557; **SA** — Oracle PC-Network, (08) 234 0791; **WA** — 1990 Multiline, (09) 370 3333; **Tas**

— Tassie DataBank (003) 44 9762. If you would like a current complete listing without having to download it, send an IBM-formatted floppy disk to: BBS Listing, *Your Computer*, PO Box 199, Alexandria 2015 NSW. Registration of bulletin boards is only accepted electronically at the primary electronic collection points — please address all enquiries through them.

I would just like to take this opportunity to thank Rodney Creer, the national BBS registry coordinator, and his state coordinators for their most able assistance and cooperation during the past year.

had intended to stop using anyway.

So after all that, what's changed? Not very much really. The Hayes AT command set and escape sequence are still far and away the standard way of controlling a modem. Just that now, Hayes is being paid for other people's use of the escape sequence. Those that don't want to pay have their own system, but I for one don't see much future in it.

### Farallon enters PC market

FARALLON COMPUTING, best known for its range of Macintosh networking products, has released a range of products for the PC platform, which are compatible with the existing Mac product line. Farallon's CEO, Reese Jones, was in Australia recently for MacWorld, and gave us a sneak preview of some of the products.

He says that while 65 per cent of Macs sold are connected to some sort of network, the figure is only 35 per cent for DOS-based PCs, and 25 per cent for Windows machines — the latter figure being likely to increase with the release of Windows for Workgroups. This is no doubt due to the incorporation of the (albeit slow) LocalTalk hardware into every Mac sold.

Actually, Farallon has been producing an AppleTalk card for PCs since 1991, allowing the host PC to access AppleTalk file and print services on the network. This provided a workable solution for DOS users, but caused problems with Windows and other memory-hungry applications.

One of the company's most popular Mac products has been Timbuktu — a Carbon-Copy style program which allows one Mac to control another over a network,

while another version operates over a modem. Timbuktu is a popular support tool with MIS departments, allowing support staff to guide users through a piece of software, without the former having to leave their desks. The benefits for companies with sites all around the country are obvious!

The newly-released PC version gives Windows users the same functionality as its Mac sibling, and moreover, allows cross-platform remote control. A PC can control software on a Mac connected to the network, or a Mac can run Windows. People who have to support both platforms no longer need to have two computers on their desks. It's quite amusing, to say the least, to watch peoples' faces when they see Windows running on a Mac screen!

Reese says the company aims to be a one-stop shop for multi-platform networking, regardless of the network operating system and topology used. The company has products that support Apple's LocalTalk system, Ethernet, and Token Ring networks, and supports the AppleTalk, Novell, and TCP/IP network protocols.

Pricing for the new PC products was not available at press time. Farallon products are distributed in Australia by NetComm, (02) 888 5533.

### The slow road to V.Fast

ON A RECENT visit to US Robotics' headquarters in Chicago, Newsbytes asked Dale

Walsh, the company's representative on the CCITT study group for V.Fast, his thoughts on when V.Fast modems would appear on the market.

Walsh replied that he thought a fourth quarter time frame for the standard was a likely possibility. Now these comments have been confirmed from other CCITT sources in the modem industry. According to Motorola Codex, delegates from a wide variety of US modem companies, including Motorola, General Datacom, Octocom Systems, UDS Motorola and US Robotics, all agreed that the V.Fast standard could be worked out, but at this stage wouldn't set a date.

'We are quite pleased with the number of agreements that were reached and are now optimistic that a firm V.Fast standard can be completed during 1993,' said Dave Forney, Motorola's vice president.

The V.Fast group agreed to include a number of enhanced technologies into the interim standard proposals. Subject to further tests, these include: pre-coding, adaptive pre-emphasis, shaping, non-linear encoding and adaptive power control. The meeting, which was held in late September, 1992, in Bath UK, agreed on multiple symbol rates and multiple centre frequencies for each data rate with a top speed of 28,800 bits per second.

Each member of the CCITT study group on V.Fast has agreed to carry out selected tests on the technologies involved. Dale Walsh — vice president of advanced development at US Robotics — said that his company has agreed to coordinate computer simulations to test the various codes on simulated phone channels. 'This will help to find the best complexity versus performance trade-off,' he said.

The next meeting of the US V.Fast standards development committee will take place in Florida later this month. The next international meeting of the CCITT will take place in Geneva in January.

While a lot of technical issues have clearly yet to be discussed by the CCITT's various groups on the V.Fast standard, it's equally clear that some progress is being made. The delays in the introduction of the standard are, however, beginning to take their toll on the modem manufacturers, with several companies introducing interim high-speed modems capable of being upgraded to V.Fast, when it arrives.

*Newsbytes*



# IS MICROSOFT UNFAIR?

Jim Mallory of Newsbytes  
doesn't believe so . . .

**F**OR THE PAST YEAR and a half, Newsbytes has reported periodically on the fact that Microsoft Corporation is being investigated by the US government's Federal Trade Commission (FTC) for possible unfair trade practices. Trade publication, *InfoWorld*, recently carried a front page story saying that a group of Microsoft's competitors have revealed various charges those competitors made to the FTC about Microsoft.

The charges, which were released on the condition that the companies' names not be revealed, included the withholding of lists of registered users of Microsoft Windows from competitors; sending of a promotional mailing to registered Windows users but not sharing that list with independent software developers (ISVs); and using its position of dominance in the operating systems market to squash bundling deals between ISVs and PC makers.

Microsoft also is alleged to have pre-disclosed new products to customers to freeze demand for competing products already on the market; offered special deals on operating system software to large customers who order Microsoft applications; dumped its own software at prices lower than cost to run others out of the market; and abused information gained under confidentiality agreements with ISVs. Microsoft also allegedly gave its in-house software developers preferential treatment in providing systems information. They also supposedly provided Microsoft developers with information that wasn't available to competing applications developers.

But when you look at these allegations, are they all so terrible? Granted, dumping is a tactic that we really get excited about, especially when the Japanese do it, because it threatens US companies. But many retailers sell below cost. The items are called 'loss leaders', products that are sold below cost to get the buyer into the store to buy other, higher-profit items. And no one seems to mind when a company sells an item at less than cost to move it so the new, improved version of the same product has room on the shelves.

And where is it written in stone that you have to tell your competitors all your se-

crets? Independent software developers are just that — independent. Microsoft provides them with information about its systems for Microsoft's benefit — the more applications there are for DOS and Windows, and Windows For Workgroups, and Windows NT, the more Microsoft benefits. Computer users don't buy operating system software for which there aren't any applications. A look at any applications catalog will show that developers are getting enough information to develop products, and if Microsoft holds back a few trade secrets to make their word processor or database a little better than another company's, what's wrong with that?

And why should Microsoft, or any other company, provide valuable customer lists to their competitors? Do you want your competitors to have the names and addresses of all your customers? And what's wrong with telling your customers that you're coming out with a new product, and they might want to wait until it is in the marketplace before they decide what word processor, or what spreadsheet, to buy? Car makers hype their products for weeks before the models are available in the showroom, to whet your appetite and keep you from buying that other model you have

been considering. The FTC doesn't seem to think that's a problem. As for special deals on operating systems, how many businesses haven't offered their best customers special deals. Do car makers ever say to fleet buyers, 'if you buy *x* number of new trucks, we can give you a special price on your executive automobiles'?

Although the FTC is close-mouthed about what its doing, it appears that its investigation into Microsoft has wound down. It's very possible that they will decide that Microsoft has done a few things it shouldn't have. And if that's the case, the company should pay the fiddler. Those are the rules. But no company, in my opinion, should have to tell their competitors all their secrets, nor have a government agency decide the price of its products. Competition in business is a way of life, where the best survive and the weakest don't. Microsoft isn't the only company you can buy an operating system from (remember Macintosh, IBM's OS/2 and Unix?), and there's lots of companies writing applications that run under the alternative operating systems. Microsoft's competitors should spend more time designing a strategy to get a bigger market share and less time complaining. □







**JOHN  
HEPWORTH**

# Windows OrgChart

**E**VERY BUSINESS, EVERY club, every group needs to decide how it is to be structured, organised and run. If the group is very small, the structure might just be one leader and a handful of followers, all of whom report to that leader, and with the titles and roles of each person not defined. This, however, only works for very small groups or companies, and well before you get to ten or a dozen people you'll want to work out a structure for the company. Things like who reports to whom, what job titles are given for a position and generally how people in the company relate to each other. The standard tool for defining and illustrating group structures is the organisation chart. Simple to read and understand, an organisation chart can be a pain to create. Even worse, editing an existing chart can be an exercise in frustration.

Many flowcharting programs offer some tools for creation of organisation charts, but programs specifically designed to create and edit organisation charts are few and far between. One such program was Instant OrgCharting!, by Roykore, who also created the flowcharting program ABC Flowcharter. Roykore has been taken over by Micrografx, who have now released a renamed, revised and updated version of Instant OrgCharter!. It is now titled Windows OrgChart, and is probably the fastest way to create a clear and unambiguous organisation chart for your company, department, or club. It is also fantastically easy to modify a chart, to add or delete an individual or position.

Windows OrgChart (WOC) has a 3.5- and a 5.25-inch disk in the package, and the usual automatic installation program to install the program on your hard disk. This also creates a new group for the program, with four icons. One is used to start the program, while the others are used to start WOC and load sample files into it.

The WOC screen has the usual title and

menu bars at the top, with most of the screen area being used to create and edit charts. There are rulers at the top and left of the window, scroll bars at the bottom and right, and a status bar at the very bottom. The main editing area has dots arranged to form an alignment grid, while the margins are also shown.

When WOC is first started, a rectangular box is displayed at the centre of the top of the current page. This is for entry of details of the highest level manager in the chart. As it is the only box in the chart it is automatically selected and thus has a number of buttons around it. These are used to add a superior, a subordinate, and assistant, or a co-worker. Click on one of these buttons and a dialog box appears, into which you put the person's name and title. While these are the default entries others can be user-defined. Any field, default or user defined, can be displayed or hidden, and the order in which they are displayed is determined by the user. Naturally, it is possible to add several boxes of the same type at the same time, without entering names and other details, and this is particularly useful when you are roughing out a chart without worrying about names of people or positions. As boxes are added or deleted WOC rearranges the chart to fit them in the appropriate place for the selected style.

A note can be attached to an entry, as can a graphics file, which could be very useful for keeping pictures of people and associating the image with the name and task.

The font, both typeface and size, of a field can be changed, and WOC can use the fonts already on your system or one of a number of TrueType fonts that come with the package. The appearance of a box can be changed in many ways. It can be stretched, or reduced in size, but with a minimum size set by the length of the longest entry in a field in the box. It's possible to add a shadow, and colour the outline,

background and foreground of a box.

Rearranging a chart can be done in many ways. WOC has a number of predefined styles, which are applied by selecting a box and then choosing the style. The style is then applied to the selected box and to its subordinates. The available styles are Horizontal, Horizontal Four Columns, Horizontal Two Columns, Vertical One Column, Vertical Two Columns, Vertical Four Columns, Staggered, List and Framed List. A mix of styles can be used in a chart, such as horizontal for the first level beneath the managing director, staggered for the next level down, and lists or framed lists for lower levels, though naturally any combination could be used.

Once laid out, a chart can be modified manually. Select a box by clicking on it with the mouse, and it can be dragged to any desired place that is not physically beside or above its superior in the organisation. At the same time, all its assistants and subordinates are moved with it, and all the existing lines are redrawn to suit. If a position in the hierarchy has been changed, with a different superior, just click on the box for the position concerned and drag it to the 'subordinates' button of its new superior. It's also possible to draw additional linking lines manually.

Probably the best thing about WOC is its speed. Literally it takes far longer to type in the name, title and other details than it does to add the box. To lay out a chart for a section of a couple of dozen people will only take about ten minutes, provided of course that you know the names of people and positions and who you want to report to whom.

Windows OrgChart has quite a good manual, generally very well written, laid out and illustrated. It does have the occasional blind spot, with one such being its description of importing a text file, though there is a compensation in that there is a sample text file for import that, with a little 'reverse engineering' quickly shows how to write a text file for import or create one with a database or similar.

WOC is a product of Micrografx. The distributor is Software Suppliers, (02) 888 1955. RRP is \$250.

***Windows  
OrgChart has  
quite a good  
manual, gener-  
ally very well  
written, laid  
out and  
illustrated.***





## WinMaster

MANY PC USERS HAVE heard of PC-Kwik. It was one of the first disk caches available for the PC, and it gave many a PC a great improvement of performance in disk-intensive tasks. The PC-Kwik corporation now has several products, for DOS and Windows. Super PC-Kwik 4.1 is the latest version of the disk cache. PowerPak 2.1 combines a disk cache with a screen accelerator, keyboard accelerator, print spooler and command line editor. It also includes disk optimisation software to defragment disks, test them, remap bad sectors and many more. While both of these products can be used with both DOS and Windows, they have a DOS rather than a Windows interface. Such an interface is found in a third product, called WinMaster. This combines a disk cache, and a RAM drive that can share the same memory, with several other utilities and, most interestingly, with a Program Manager enhancement that adds floating, customisable button bars that can be used to launch programs and generally speed up the way you work with Windows.

WinMaster comes on three 3.5-inch disks, or on 5.25-inch disks, and as usual is installed on the hard disk by an automatic

*Above: The main WinMaster toolbox can search for files, run a program and much more. Below: The KwikInfo toolbox buttons run a dozen programs that examine your computer.*



installation program, taking up just under 3MB of hard disk space. At the same time, the installation program creates a group containing eight icons. These are Setup, Toolbox, KwikInfo, PowerScope, PowerDisk, Scheduler, SuperWin and KwikVault.

The Setup program is used to reinstall from floppy, or uninstall from the hard disk, the various parts of WinMaster. It is also used to configure the WinMaster cache, RAM drive and utility programs. Toolbox brings up the various floating button bars, of which more will be said later. KwikInfo brings up a button bar with twelve buttons. These are used to run various programs

that can display information about the configuration of your system, or display performance statistics on such things as memory usage, cache performance and more. PowerScope examines your hard disk and gives information about a variety of factors. PowerDisk is used to examine the fragmentation of your hard disk, and is used to shuffle files and sectors around your hard disk to defragment files. Scheduler is used to set up an automatic sched-

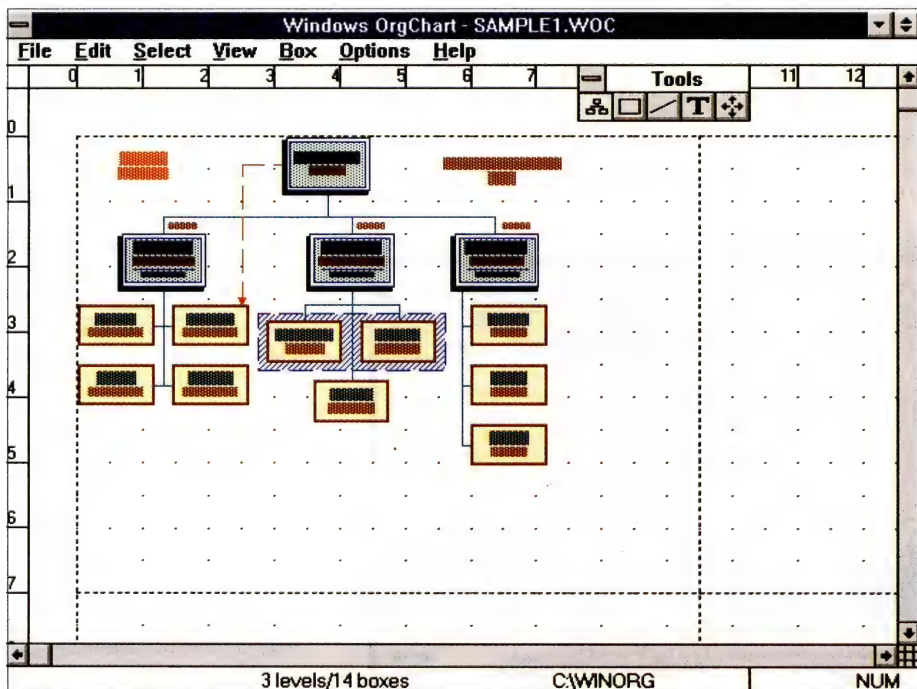
ule for PowerDisk, with different types of test and reorganisation being run on different days. SuperWin gives statistical information on the performance of the PC-Kwik hard disk cache. Finally KwikVault is used to compress files that are rarely used and tuck them away out of sight.

WinMaster has a particularly interesting and useful feature. This is its toolbox function, which allows the user to create a toolbar of buttons. Clicking on a button runs a program. Toolboxes can be nested, with a click on a button in one bar opening another toolbox. When creating a toolbar it's possible for it to read one of the Program Manager group files and automatically create a new toolbar to match.

Toolbars can be arranged in various ways. They can be vertical or horizontal and have one or more rows or columns. Toolbars can be arranged to always be on top of any other window on the screen, to be popped up with a hot-key combination, or even to be popped up with a double click of the right mouse button. Each toolbar is 3D, and has a icon on its face to identify it, with the user able to select the icon from a range of sources.

I found the most useful and important part of the whole package to be the Toolbox function. The PC-Kwik cache, while a great improvement on running a system without a disk cache, was no faster in the benchmarks I ran than the SmartDrive cache that came with Windows 3.1. The disk optimiser is useful, particularly as it comes set up to run from inside Windows, unlike most other disk optimisers that won't (and shouldn't) run from inside a multitasking environment, while the other tools are interesting, if not compelling.

WinMaster is a product of the PC-Kwik corporation. It is distributed by PC Extras, (02) 319 2155. RRP is \$116. □



*Windows OrgChart can zoom to show a whole page or whole chart on screen.*



# RELEASE UPDATES

*We are always seeking new and interesting products to tell our readers about — we are particularly interested in releases that would be useful to small businesses, and 'stand-alone' users. Please address release information to: Product Updates, Your Computer, PO Box 199, Alexandria 2015 NSW. For inclusion in a specific month, material must be submitted 4 weeks prior to the cover date. We are also interested in the stories behind new Australian product development — if there is a tale to your product that you would like to tell our readers, please fax it to Jake Kennedy on (02) 353 0720.*

## A-Train

What is it that makes train buffs such fanatics? Is it the dumbfounding majesty of the Gods of Iron? Is it the dim, inherited memory of the grand old days when standard fare on the Panama Limited consisted of Guayamas shrimp, Cranshaw melon, Rocky Mountain trout, Westphalia hams, Mexican quail, fresh caviar and rare cheeses — and to wash it down, what could be more perfect than a bottle of Dom Perignon?

Maxis, a company previously known for their ant antics, planetscapes, and city simulations, have just released

A-Train for the Mac — a program guaranteed to drive any train buff clean off the rails and fight out of their schedules. A-Train tests budding capitalists in three key areas. Although it is based on the successful management of a railroad empire, it quickly branches into city planning and the stock market. Juggle all three and you might have what it takes to master this oh-so-complex simulation.

The hub of the game consists of a three dimensional style map and an icon bar. Constructed with enormous attention to detail, these maps contain everything from office blocks to amusement parks (complete with fireworks on Saturday nights). On December the 24th Santa flies across, but it is more often a flight of geese, or a UFO flitting hither and thither on a balmy Sunday afternoon that diverts attention from your growing steel network.

Delve into this game just a little, and it quickly explodes with an enormous variety of scenarios, options and logistical nightmares. One of the lesser tasks is deciding what land to requisition before laying track. Should it go through the centre of the existing city, where demand will be strongest, or should you skirt the city and try to start another business centre? Of the 19 different

engines available, which one can haul an economic number of passengers? If two trains ply the same track, then what about the timetables? Although the horror of head-on collisions doesn't occur, delays and disenchanted passengers are just as disastrous to your finances.

Expansion is also much easier said than done. Sure you can just whack down some track, stretching to the horizon, but how does one attract passengers? Try building a resort complex: amusement park, golf course for summer, ski resort for winter, a hotel and don't forget the station. Midway along put up a few factories to supply the necessary materials. A goods train can take the surplus and sell it in other districts for some extra cash.

As you can see, it isn't easy becoming a runaway success in the train business. Although you can't delegate tasks, there are still some 20 business advisors to help you with making the tough decisions. This might help you a little, but don't always trust them. You're better off relying on information gleaned from the numerous reports, charts, graphs and statistics. Get your facts right, and you might end up with a business growing faster than a speeding Shinkansen Bullet Train. Get your facts wrong, and I've heard Spain is simply lovely

at this time of the year. Which-ever the case, how will you know if you don't take the A-Train?

**A-Train for the Mac, \$99.95, is distributed by Electronic Arts, (075) 91 1388.**

## Epson Connect!

Epson Australia has introduced a product which it claims means 21 new printers for the Macintosh market. Epson Connect is a hardware and software combination which allows most Macintosh computers to connect to any Epson printer. The Connect package consists of cabling, drivers, manuals and a quick installation guide allowing users to set-up quickly. The product was developed in Sydney and was introduced at MacWorld by Merisel.

The product allows any Epson printer, including lasers, to be connected to most Macs, including Quadra and Powerbooks. Minimum system requirements are a hard disk, at least 1MB of RAM and System 6.0.5 or later. There are three versions, matched to different requirements and budgets. Connect 1 is said by Epson to offer the highest performance and includes a LocalTalk interface which enables the Epson printer to be part of an AppleTalk network. Connect 2 is aimed at the single user who wants a parallel port connection. It has a serial to parallel converter which connects the Mac serial port to the printer's parallel port. Connect 3 is the lowest cost system for single users. It connects to the printer's serial port. A version of the pack is available to add a serial port to the printer if necessary.

Features include: graphics up to 360 by 360 dpi, fast draft mode, System 7 balloon help, sheet feeder support and TrueType and bitmap fonts.

**Prices were not announced. For further information contact Epson Australia (02) 452 0666, fax (02) 975 1409.**





# It was our Word against theirs, and they took ours.



In a recent test  
conducted by  
the National  
Software  
Testing

Laboratories, 76% of  
WordPerfect® for DOS  
users preferred Microsoft®  
Word 2.0 for Windows™ over  
WordPerfect for Windows. And  
if that surprises you, read on.

Of the same group, 76% said  
they found Word easier to learn,  
76% said Word was easier to use,  
and 75% said they would purchase  
Word for Windows ahead of WordPerfect  
for Windows.

It begs the question, why would they take our  
Word against their own?

Could it be that they were surprised at how  
easy it was to perform everyday word processing  
tasks with Word for Windows? Like printing an  
envelope or adding bullet points using a simple  
point and click.

Or were they just amazed at how easy it was  
to move from WordPerfect to Word?



We think it was  
both these things, but  
we don't expect you  
to take our word for it.  
Simply complete this  
coupon and we'll send  
you an analysis of the  
independent test and a  
free demonstration disk.

Then judge for yourself  
how much easier Word can  
make your day.

If you'd like to move up from  
your current word processor, call  
Customer Service on (02) 870 2100, or  
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## FoxPro 2.0

Microsoft has introduced new versions of its FoxPro database products, with the first available being for Windows and MS-DOS. Both versions feature cross-platform compatibility and deliver enhancements to the FoxPro 2.0 database management system (DBMS).

'With FoxPro 2.5, four million xBase users will be able to create full-featured applications that take complete advantage of the Windows environment, without abandoning their existing investment,' said Microsoft CEO Bill Gates.

Nabeel Youakim, Microsoft Australia's Enterprise Marketing Manager, said that 'Our vision is to continually provide the fastest PC DBMS products to the customer. With its performance enhancements, FoxPro 2.5 delivers our vision. It is a cost-effective solution for high-performance data management requirements. Applications that previously required mini-computers now can be efficiently handled with FoxPro 2.5 on a PC LAN.'

While the initial release of FoxPro 2.5 will be for the DOS and Windows platforms, it will also be available for Macintosh and Unix in 1993. Both data and application code can be simultaneously shared in all of these environments without modifying any code. For developers, this means developing an application once and being able to run it on all four platforms. For corporations this means supporting one DBMS standard, allowing support training and maintenance to be consolidated to one product for all users at all levels on four different operating systems.

Much of the improved performance of FoxPro 2.5 comes from its Rushmore technology. FoxPro also has Relational Query By Example (ROBE), and an interactive screen generator. A Toolbox gives quick access to report design tools and objects, with control of fonts and other attributes for all report objects. For developers there is an Integrated Development Environment, debugging and project management tools, and an extended xBase language implementation.

FoxPro 2.5 is backwardly compatible with dBase III, III+ IV, with 200 additional commands and functions to those in dBase IV. The new Cross Platform Transporter automatically enhances the appearance of applications across platforms. For example, when transporting an application from MS-DOS to Windows, FoxPro 2.5 automatically adds proportional fonts, maps the controls to Windows controls, and makes the dialogs look like Window dialog boxes without requiring any change to the source code.

Microsoft FoxPro 2.5 provides a consistent user interface and tools on all platforms, so that users only have to learn once and can apply that knowledge to multiple platforms.

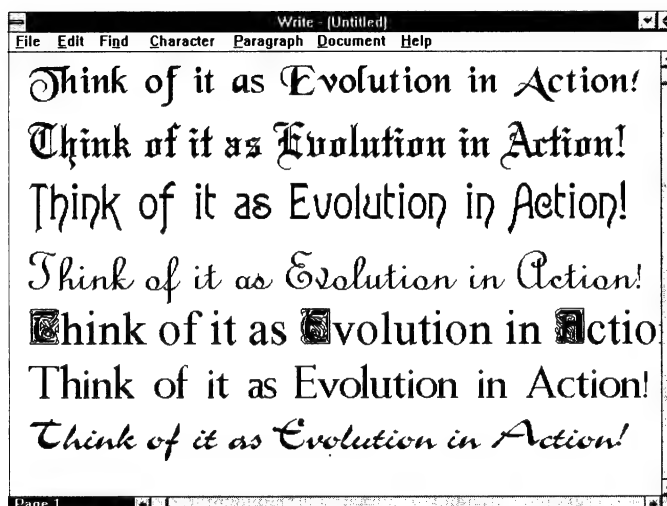
***FoxPro 2.5 has a recommended retail price of \$1095 for the first user, and additional users are accommodated by Multi Licence Packs at \$595 for each additional user. A software distribution kit is available at \$795. Upgrade and competitive crossgrades are available at greatly reduced prices. (John Hepworth)***

## QualiType

One of the cardinal rules of desktop publishing is to break all the cardinal rules. If one is to comply, then it is decidedly easier to achieve this—and the results infinitely more effective—if one has the assistance of an agreeable and resourceful

accomplice.

The QualiType Font Value Pack is not only very agreeable and resourceful, but is also highly cost effective. Your layouts need never be stultified by Helvetica headings and Times Roman text again. The pack contains 150 typefaces in a good mixture of display faces



(those useful for any text that must attract attention), and faces suitable for larger blocks of text that require and promote easy reading.

Although many of the typefaces are delightful, unusual, or both, a large number are simply replicas of Adobe's standard fare. The previewer utility makes the onerous task of deciding which ones to install (unless you have 8.5 megabytes

free) a little easier.

A bonus is included by way of some 1500 icons (complete with manager) and 50 wild and wacky sounds that can be played through the PC speaker with the supplied driver.

***The QualiType Font Value Pack is available as TrueType, \$199, or Adobe Type 1, \$249, Logo Distribution Services (02) 905 1844. (Stephen O'Brien)***

## Gestetner Hurricane

Australian printer manufacturer Gestetner has announced its new-generation laser printer, the 8 page per minute GRX820 Hurricane. Basing the Hurricane upon a Canon laser printer engine, giving it the ability to use the most easily-available cartridges, including the Boomerang cartridges re-manufactured by Gestetner themselves, the company has added an Australian designed and manufactured controller using the Intel i960 RISC processor, with a numeric processor. This gives the Hurricane exceptional performance plus emulations of the PCL5 and PostScript page description languages.

The Hurricane has Automatic Emulation Sensing, Switching and Input Port Sharing which means three host PCs can share the GRX820 simultaneously via its one parallel and two serial ports, and the printer will switch also automatically between the various emulations as files are sent to it one after the other. It also has an easy-to-use, two-button front panel with a plain-English LCD status panel. Standard memory is 4MB which can be increased to 16MB with standard SIMMS.

The Hurricane and its controller were designed, developed and manufactured in Australia at Gestetner's Frenchs Forest plant, with the assistance of strategic alliances with AWA, Techway and Labtam. Gestetner plans to export the GRX820 Hurricane to the United States, Europe and Asia, and to export the controller to be incorporated in printers built by other companies.

***The three models of the Hurricane are a single bin unit at \$4400, dual bin at \$5280, and \$5805 for the dual bin duplexer (all prices ex-tax). All have a three-year on-site warranty. Gestetner Lasers can be contacted on (02) 938 0800. (John Hepworth)***



# OzGis

A software company based in Queanbeyan has released a data analysis package for which is especially suited to analysing federal census data. Geismar Holdings has released OzGis, a mapping program which allows the user to present census data in map and pictorial form.

Lloyd Simons, Geismar managing director, obtained the rights to the software from Paxus. Simons had been developing the package for the CSIRO's Division of Computing Research when CSIRONET was purchased by Paxus and the project abandoned. OzGis will allow users with access to the 1991 census data (due for release shortly) to display the information from geographic districts (each of about 100 residences) into maps composed of individual districts or covering a whole state. This data can be presented in graph, table, or map form.

Potential uses include political parties which might examine vote counts by district, ethnic background, or income level, or by welfare agencies to track areas of particular hardships and levels of welfare payments in those areas. Simons also said the package could be integrated with many commonly used spreadsheet, database, and statistical analysis packages.

OzGis, \$100, Geismar Holdings, (06) 236 3216.

## NeXT from Canon

Canon Australia has announced it has signed a distribution agreement with NeXT, the high-end computer company started by Apple Computer co-founder, Steve Jobs. The agreement, which will see Canon as the exclusive NeXT distributor in Australia, marks Canon's entry into the high-end computer market in Australia.

Martin Rehfeld, a Canon

spokesman, said that the distribution arrangement will see the establishment of a new chain of resellers. 'Because of the type of unit it is, the type of expertise needed to sell it is not what most of our current resellers are equipped with,' he said, adding: 'We are now in the process of setting up a new line of resellers to handle the NeXT machine,' he added. The agreement adds onto Canon's existing distribution agreement with NeXT for the Asian market.

Australian pricing for the NeXT workstations will range from \$13,580 for a 16 megabyte memory-equipped NeXTStation Turbo with a 250MB hard disk, through to \$17,990 for the 16MB RAM, 400MB hard disk, colour machine at the top of the range.

Large scale distribution is expected in early 1993 after the machine's official introduction, expected to be in March. Canon has already installed NeXT workstations at its Canon Infor-

Information Systems Research Research Australia research and development development facility at North Ryde Ryde Sydney's northern suburbs.

For more information, ciation, co  
tact Canon Australia, (02) lia, (02) 8  
2000.

## ISYS Windows

Odyssey Development ment  
nounced ISYS Windows at Cows at Co  
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on the success of the DOS ne DOS v  
sion of the well-known textbwn text  
trieval software.

Mark Reiss, managing director of Odyssey Development, said that the DOS version of Irisoft has proved extremely popular in the United States as well as Australia. With the overwhelming popularity of Windows, customers have been demanding a Windows version of the product. "The character version of ISIS is well known for its ease of use, but the Windows version is even easier thanks to its fit to the trend which has an incredible

# PKZip 2.0

PKWare, makers of the popular shareware data compression utility PKZip, has announced PKZip version 2.0 and the PKWare Data Compression Library for software developers. PKWare's PKZip creates compressed files with the extension .zip. PKUnzip extracts or decompresses those files, and PkSfx creates a self-extracting compressed file with an .exe extension. The product allows the user to select either high speed or high compression with a balance between the two selected if no option is specified.

New features in version 2.0 include the ability to create backup copies of entire hard disk drives by offering creation of .zip files which span more than one disk. Large files which could not otherwise be moved can be compressed using version 2.0.

PKWare says PKZip can be used as a back-up program as it will also format floppy disks on-the-fly so it is no longer necessary to know how many disks are needed in advance. The new version also includes PK Safe ANSI, a terminate and stay resident (TSR) program requiring less than 1 kilobyte of memory that acts as protection against rogue programs which can remap the keyboard during decompression. If ansi.sys is loaded at the boot as a device driver to allow the display of text in colour, it can permit a rogue program to remap the keyboard. So, for example, the F1 key could execute a format hard disk command, a situation known as an 'ANSI keyboard bomb'.

Also new is PKUnzip Junior, a version of PKUnzip which is less than 3KB in size designed for space-saving distribution of compressed files, PKWare said.

A 32-bit cyclic redundancy check (CRC) is used to check the integrity of the data compressed by PKZip and checked during decompression by PKUnzip. This is a newer and more sophisticated method than the 16-bit CRC used previously.

PKWare says a single .zip file can include as many as 8000 files and compresses an average of 50 to 70 per cent. However, some database, spreadsheet, and image files compress as much as 90 per cent. An internal configuration file allows users to set up PKWare to their tastes with a setup program provided to make the configuration easier, PKWare added.

PKZip version 2.0 is in the beta test stage and is expected to be available in the first quarter of 1993. It will be offered as shareware and can be available from many bulletin boards. The Australian distributor is My Computer Company (02) 565 1991, fax (02) 550 4459. A registration is \$75 — note: a final release date had not been seen at press time.

The PKWare Data Compression Library is not shareware. shareware. PKWare says the library does not offer the source code and dle and does not produce files in the PKZip format, but does offer royalty free for runtime usage. Also, the library routines allow developers control over the input and output data as well as the ability to specify where compressed data is sent or extracted from.

The library routines compress unformatted text (ASCII & ASCII binary data), allow for application controlled input/output, output & memory allocation, allow adjustment to the data dictionary size, any software can be fine tuned for maximum speed or compression efficiency, work with any 80X86 CPU in either real or protected mode, and are compatible with compilers such as C, C++, Pascal, Basic, Assembly and Clipper.

The library was written in assembly language, requires 35KB of RAM for compression and only 12KB for extraction of compressed data. Developers can expect the compression routine to add an additional 7KB to the size of their executable program, the company said.



sexy look and feel,' Reiss said.

Both the DOS and Windows versions of ISYS use the same index file format, allowing users on a LAN to access the index from either the DOS or Windows version.

ISYS Windows provides increased interfaces for graphic images over the DOS version. Users will be able to zoom, pan and print images straight from ISYS, taking the product even further into the imaging market. With its extended graphics capabilities, ISYS makes a cost effective alternative to competitive products costing many times more. ISYS Windows allows for cutting and pasting between applications, and is fully compatible with the Windows clipboard. Users will be able to have multiple documents open

at the same time and still conduct additional searches. The new release also means it is now possible to run ISYS and a word processing document on the screen simultaneously, moving information freely between the two.

ISYS created the text search engine as a DLL, and then created a front end for the DLL. The engine will be licensed to OEMs who can integrate the text engine into their applications, providing an inexpensive and exciting opportunity for creating and styling custom front end menus.

**ISYS Windows, \$525 for the stand-alone version; \$995 for the LAN starter kit. ISYS is an Australian product from Odyssey Development, (02) 965 7250. (John Hepworth)**

## ZyIndex for Windows

Quick! Where's the file with the marketing brochure for the left handed widget? What do you mean you've got a hard disk full of documents, and you can't work out from the file names which one you might want!

This is not an unusual scenario, but typically it causes no end of problems. Usually a question like this from a boss or co-worker, or even from yourself, would mean looking at a DIR listing, trying to guess from file names and dates which files are possible candidates, and then reading them one by one with a file browser or word processor. You could also use a text search program to look through the hard disk for a file containing a particular phrase, but these take a lot of time to do the search and have limited logical ability to narrow it down.

Fortunately there are some programs that are designed to index document files on your hard disk at a convenient time. They can then, in literally a matter of seconds, search that index based on criteria that you define, and then list all the files that contain the words and phrases you have specified. Typically they can then display the text in the file, and if desired can launch the appropriate word processor or editor and load the document file into it.

One such program is ZyIndex. It's been around for some time in a DOS version, and for a shorter time as a Windows program. The newest version of the Windows program is ZyIndex for Windows 5.0. If you have many documents on your hard disk, and have difficulty in finding the right one at times, it could be the solution for your problems.

ZyIndex for Windows comes on a single 3.5-inch high density disk. The installation program expands the files on the distribution disk as it installs them on the hard disk, with 2.6MB of hard disk being required for the program files. The index files themselves need quite a bit of space, with the index files for 9MB of documents taking up 2.6MB of disk space on the test system. Indexing more documents would require more disk space, of course.

The installation program creates a group with two separate programs. These are ZyBuild, to build indexes, and ZyFind, to search. With these two programs it's possible to create and use more than one index, so that there can be separate indexes for all

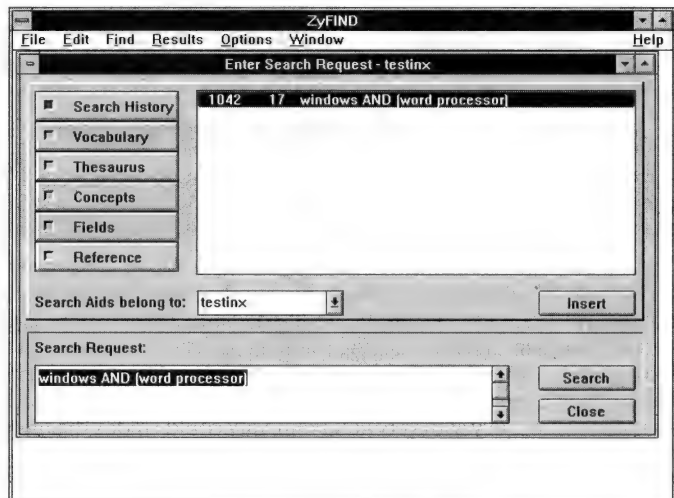
documents on a hard disk, and for different sub-sets of the documents on the disk.

The first step in using ZyIndex is to launch ZyBuild and use it to create an index. A few simple steps are required. First select a name for the new index, the path where it is to be located, and if Concepts/Fields are to be shared across indexes or index-specific. Then set the files that are to be included or excluded from the group to be indexed. Files to be included are specified by a starting directory, whether or not files in subdirectories are to be included, and the file mask(s) to be included. Files to be excluded are specified only as masks for files that are to be ignored. The defaults for file exclusion are \*.exe, \*.com, and \*.sys files, but others can easily be added to the exclude list, \*.dll and \*.ovl being just a couple that immediately come to mind.

While indexing, ZyBuild refers to a list of 'noise' words. These are the many words that don't help narrow down the search for a file — 'and', 'the', and single letters of the alphabet are fairly obvious examples. ZyBuild has a standard list of over 100 of these noise words that it ignores while indexing. Words can be added to the noise words list if they should be ignored, and as an alternative, words in the noise words list that have special meaning for you can be taken out of the list so that ZyBuild will index them.

The Now option in the Build menu is used to start ZyBuild's examination of files on your hard drive. ZyBuild reads through every file specified, and records every word it finds (except for noise words) along with details of the file it is in and the location of the word in that file. It then merges all the information it has gathered and creates an index. The whole process of indexing nearly 9MB of document files took just over 50 minutes on a 25MHz 386DX.

Should you create a new file or modify an existing file, running ZyBuild again will gather its details and put them into the index in a mere minute or so, an easy enough task to do at lunchtime or at the end of business each day.



ZyBuild, while very important in that it builds the indexes on which the whole system depends, is in many ways the junior partner to ZyFind. This takes the user's search commands, reads the indexes and then displays a list of all the files that have content that matches the search criteria. The program has a built-in browse function which is used to display the text of a file. This also shows

**Prices quoted in 'Release Updates' and other sections of the magazine are recommended retail prices, including tax, unless otherwise noted. Street prices are often lower and many dealers offer bundles of products at significant discounts.**

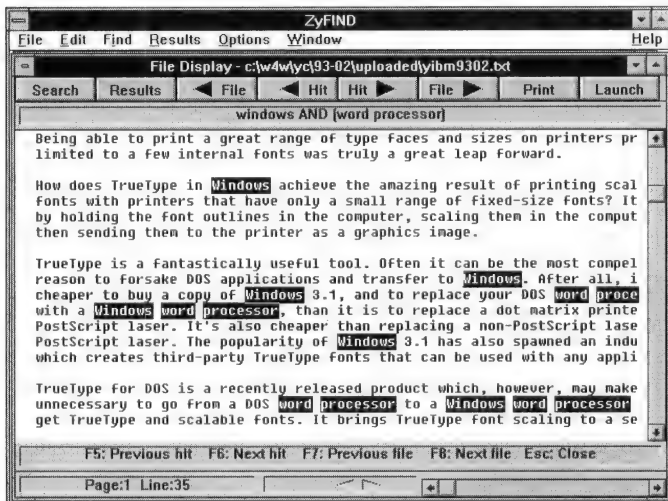


in reverse video any word that matches the search criteria. While in the browse function, buttons at the top of the screen, with symbols reminiscent of a VCR or cassette recorder buttons, are used to go to the next or previous file that also matches the search criteria, or to display the next 'hit' in the file already being read.

Want to edit the file being browsed? Click on the launch button, and ZyFind will launch the program that created the file, and load the document into it.

The art of using ZyFind is in setting the search criteria. The most basic search is to enter a single word, whereupon ZyFind will report every file containing that word. Then comes the ability to use wildcards in various forms, words in fixed positions relative to each other, and a great range of logical constructs. In many ways, however, it's a good idea to start with a simple search criterion and then make it more specific if too many files are found.

No program ever written has ever been perfect. I'm not referring here to whether or not it has any bugs, but to the underlying design. After all, every program seems to go from version 1 to version 2 and eventually to version 99 as more features are added to meet user needs and as the rough spots in the design are smoothed over. In the case of ZyIndex for Windows there are two areas where I would like to see some changes. These are the manual and some aspects of the ZyBuild program used to index files.



One difficulty comes with the design of ZyBuild. As part of my test I indexed all files in all directories on the hard disk that had the pattern \*.doc or \*.txt. I then modified some of these files, and had no problem quickly indexing them again. Then I created new files. Some of these were in directories that contained files that had already been indexed, some were in files that had never had an indexed file. Only with very great difficulty could I index the files that were in directories that had never previously contained indexed files, and worse than that I had to consciously work out where such files existed. This could be a problem on a network, with many people creating directories and documents, and one person running ZyBuild.

I would also like to see an extra way to define files to be excluded when building an index with ZyBuild. At present it is possible to include lists based on directory, with or without its subdirectory, and the file masks. Exclude lists are just based on file masks, and it would be very nice to work in reverse and be able to exclude whole or part subdirectories based on the subdirectory name and file masks.

Some of these problems may have been covered in the manual, but it's difficult to know. The language used to write the manual,

its overall design, and the relatively few illustrations in it, meant that the manual is harder to understand than it should and could be. In turn this makes it harder to exploit the features of the program than should be necessary.

If, like many people, you have many documents on a hard disk and need to quickly find one of them to satisfy a boss or meet a customer's need, ZyIndex for Windows will be a boon. In general it is easy to use, quite fast to search and index, and reasonably fast in creating the indexes in the first place. It does, however, have a couple of little areas that could do with a little attention in the next version, though none of them affect the power or usefulness of the product in its present incarnation.

**ZyIndex for Windows Version 5.0 is a product of the ZyLab division of Information Dimensions and is distributed in Australia by Charismatek (03) 696 1255, fax (03) 696 1204. Single use \$695; 2 to 10 users \$325 per workstation. A free demonstration disk is available. (John Hepworth)**

## SimLife

SimLife for the Mac isn't just Prometheus unbound, it's Prometheus totally unravelled — genetically speaking. Maxis call this product a Software Toy. They stress that, whilst it is loads of fun to play with, it doesn't have a specific goal or mode of play. It is a simulated laboratory, a computerised world, a glorious God game, and it's tonnes cooler than an ant farm.

So, after that enthusiastic wrap-up, what exactly is the meaning of SimLife? Well, one might as well begin at the dawn of creation.

SimLife begins by creating a world. It uses fractals to create peaks and mountain ranges, and then sets rivers flowing down and spilling into lakes. Wind always blows from west to east, and gathers moisture over lakes — dropping it over mountains. Large plains quickly become deserts, and temperatures change according to height and terrain. Soil erodes, but doesn't salinate; and filter food, the spice of life, follows moisture zones and varies with the seasons.

World creation is mostly an automatic process, although there is the opportunity to influence its starting parameters. Creature generation, however, really gives you the opportunity to get your hands dirty with some creative gene splicing.

The bewildering array of features required to define any

SimLife creature is, to say the least, a little daunting. A species takes its definition from three areas. Every species begins in the biology lab, where the chunky bits from the primeval soup take form. Here, the percentage of genes adopted from the father, the diversity of the gene pool, and the physical attributes of the creature (created through a series of three flip cards for the head, middle and rear) are specified. The next area lets you dabble in a little genetic engineering, defining species survival characteristics like lifespan, size, behaviour, food and so on. The final area, the gene pool, lets you adjust characteristics of specific animals within the species. Most of the 25 specifications from the genetic engineering area can be individually adjusted.

Of course, what kind of a world would it be if there wasn't a little plague, pestilence, STD, and the occasional act of God. Take your pick from a delightful menu of disasters. How about a gruelling heat wave to see how the fittest survive? What about a flood? Bet you didn't know that SimLife camels can grow gills! Build a barricade and try playing off your creations, one on one.

Setting up cock fights, however, is missing the single biggest point to SimLife, which is that SimLife is a controlled laboratory. Build two barricades and use one as the control group. The SimLife Lab Book provides a template for





recording events using standard scientific methods for observation and analysis. Try to build a stable ecosystem; design plants and animals that adapt and evolve as conditions change; spin a food web; or just experience first hand how delicate the balance of life truly is. Its use as an educational tool is

a little mind boggling — it even supports Creationism and Darwinism at the same time!

SimLife has all of the depth and complexity that one has come to expect from Maxis. In many ways the concept of a 'software toy' represents the future of educational software. Looking and learning is quickly

being replaced by the hands-on experience. What SimLife isn't, is a game. Sure, the program has some six preset scenarios that will severely tax anyone's God given gifts, but you can't ever lose in these scenarios — you just end up wiping out several hundred life forms. Yes, the cries from the dying can be a little disconcerting, but the *Ooh! La, la!* that emanates from the speaker when the unprintable happens is even more so. Not to worry though, I guess that's just one of the glorious facts of SimLife.

*SimLife, \$99.95, is currently only available for the Macintosh, and is distributed by Electronic Arts, (075) 91 1388. (Stephen O'Brien)*

## ClarisWorks for Windows

Claris International, the wholly owned software subsidiary of Apple, continues to make for-

ays into the multi-platform market with its second product for Windows. With identical menus, functionality and transparent file sharing with ClarisWorks for the Macintosh, the Windows product seamlessly integrates word processing, graphics, spreadsheet, charting and database environments into a single workspace. It combines key Windows capabilities and interfaces with the easy-to-use features that make ClarisWorks for Macintosh so popular an integrated package.

Ian Thomason, Claris' Managing Director in Australia and New Zealand said that "The Windows integrated software category is growing at the rate of 100 per cent per year and Claris intends to lead this emerging market with a unique user-centric solution. ClarisWorks is a proven leader that will give windows users the optimum combination of ease-of-use, breadth of features, value and performance."

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Signature: \_\_\_\_\_

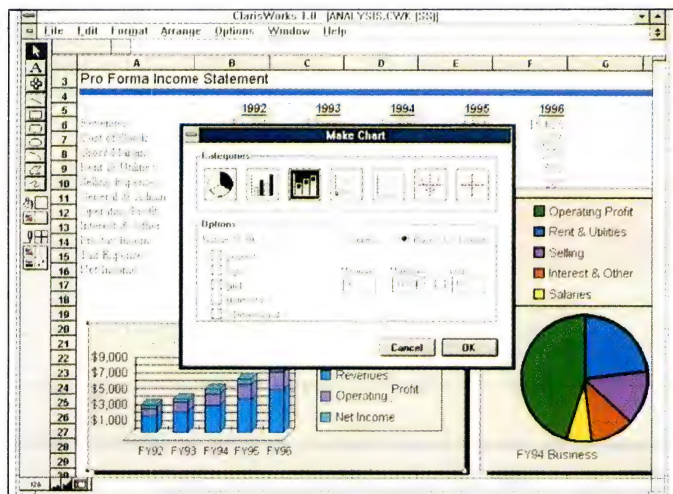
Y02



ClarisWorks' most appealing feature is its seamless, frame-based design. It does not use separate modules for word processing, spreadsheet, database and graphics, but implements all these as tools in a common workspace and document. Built as one application from the ground up, it lets users access tools and features from within a single document rather than switching between a collection of mini-applications as traditional integrated packages require.

of views of the document. The document can be edited in any of these magnifications, and display headers, footers and footnotes along with the text, graphics and so on.

ClarisWorks for Windows does not include its own communications module, but links seamlessly to the Window Terminal program from a dialog box. The package comes with an extensive range of file translators so that users can open, insert, merge, save and edit files from a wide range of appli-



ClarisWorks users can easily create a document that can combine multi-column text, colour graphics, spreadsheet tables, and charts on the same page. To create this, the user never leaves the word processing environment but merely selects the other tools.

ClarisWorks does not need or have a page preview mode, as it has true WYSIWYG in edit mode and can zoom from 3 to 3200 per cent to deliver a range

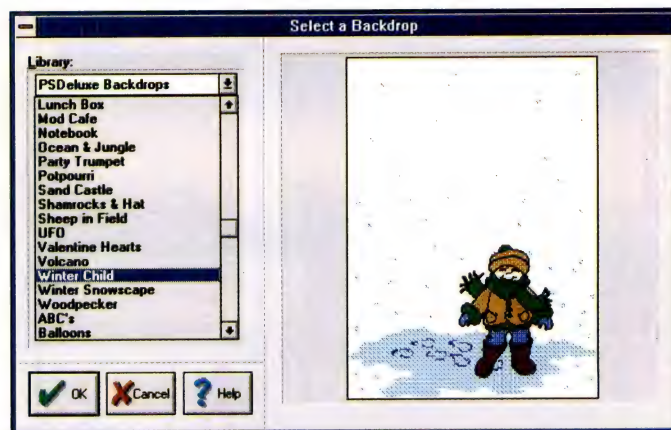
cations across a wide range of platforms. In addition both the Macintosh and Windows versions of ClarisWorks share a common file format so that users can share work across the two platforms transparently.

**ClarisWorks for Windows will be released in the first half of 1993, with pricing to be announced at that time. For further information contact Claris International, (02) 452 8585. (John Hepworth)**

## Print Shop De Luxe

My first computer, absolute aeons ago, was a Commodore 64 and I have vivid memories of the first two pieces of software I bought for it. One was a game called Impossible Mission, the other was Broderbund's Print Shop. Both were fantastic programs! I'd matched the C-64 with a Star Gemini 10x printer and was soon busily churning out fliers, letterheads, signs and the like with a great deal of pride in myself and my new toys. Looking back I have to admit that the printed results, whilst very nice and all that, had obviously been produced on a home computer.

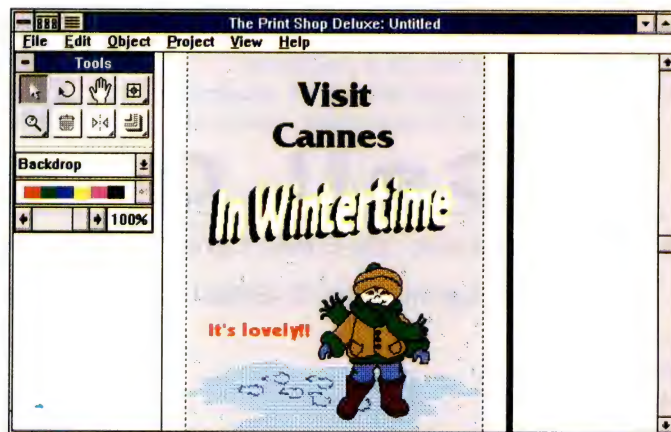
Such is not the case with what I've been producing on the PC recently with the latest De Luxe version of the Print Shop. For a



start there are no jaggies! Printed letters are smooth, nicely rounded and don't have the 'home computer' look anymore. Instead the results could have come straight from the pages of a glossy magazine produced by an expensive printery.

Running under Windows, the package includes 30 TrueType fonts, which automatically install themselves in your Windows setup with the bonus that they can be used in other Windows applications and their TrueType fonts can be used in Print Shop De Luxe. As the program allows emboldening, italicising, underlining and scaling of these fonts, plus some dazzling special effects, the range of font styles and sizes is seemingly endless.

As in earlier versions, there's a menu of Letter Heads, Signs, Banners, Greetings Cards and Calendars to select from. Then, you can choose a blank worksheet or one of a multitude of backdrops. For the example sign shown here I chose a Winter Child backdrop and the pictures show two stages of development. A series of menus and selection buttons, all quite self explanatory, led me easily through the various steps and I purposely ignored the manual. Instead, I just explored the software and produced the finished sign which I then printed out on my Star LC24-10 printer (now there's brand identification for you!) with excellent results. Had I had a colour printer it would have come out exactly as on screen, but alas! I'm still working in black and white. Supported printers range from 9-pin dot matrix to PostScript, via BubbleJet and Laser, and so suits almost everyone.



A very large selection of graphics is included and I could have placed any number of them anywhere on the sign to further enhance it had I felt the urge. The 28-page *Graphics Reference Booklet* displays all these together with the various Headline shapes you can do (Balloon, Squeeze, Pennant, Arc and so on), a number of



borders ranging from simple to elaborate, and examples of the 30 TrueType fonts. A very handy reference which complements the 96-page program manual (which I found extremely useful) when I did get around to reading it as it covered all of the very fine points and had a lot of good suggestions, too. To complete the package there's a selection of classy paper and envelopes, plus a completed (and most impressive) greetings card example showing how to fold your finished article.

I found the program extremely user friendly, with the built-in layouts, backdrops and graphics impressing me greatly with their range and variety of themes. For anyone with a need for printed communications from private individuals to business folks, schools to social clubs, drama groups and fishing clubs, whatever. The list is endless, as are the applications of this fine program. Very highly recommended.

**Print Shop De Luxe, \$139.95. Directsoft (02) 489 7853. (Eric Holroyd)**

### Enterprising screen saver

Berkeley Systems was a company that was virtually unheard of, until it released its now famous After Dark screen saver for the Mac. When Microsoft launched Windows 3.0, Berkeley quickly followed with a PC version, which added a few modules to the Mac edition.

The latest addition to the

Berkeley line-up of screen savers is a new Star Trek edition, which takes some of the more popular characters and creatures from the TV series (the original one, not 'The Next Generation'), and lets them take over your screen, should you neglect to use your computer for a few minutes.

Captain Kirk, Mr Spock, Klingons, Romulan vessels, and more can be selected from a menu, or can be shown randomly. It also has a useful password feature, so you can prevent unauthorised people from using your computer while you're away from it.

Installation is quite intelli-

gent — if you already have the original After Dark program installed, the modules from that one will appear on the new Star Trek menu, so you can choose between all the modules from both packages. Alas, it doesn't seem to know about Windows 3.1's Startup group, so if you run After Dark from there, you'll



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have to go and manually remove the 'load=' line from win.ini. Just a little rough edge in what is otherwise a very polished package.

It will work on VGA screens or better, and although it works quite well in 16 colour display modes, 256 colour modes are far more striking. But if you only have a monochrome monitor, it'll work with that too.

One of the most obvious enhancements to the previous version is the addition of sound effects to most of the modules. This will work under Windows 3.0 with the SoundBlaster card, and under 3.1, any Windows-compatible card is supported through Windows' own sound drivers. Alas, this sound support doesn't extend to the existing modules from the original edition — I miss the sound of the bubbles in the fish tank that the Mac version makes.

Even if you're not a confirmed Trekkie, Star Trek makes a welcome change from tropical fish and pretty swirly lines.

**Star Trek, the Screen Saver, \$84, is available from Trio Technology, (03) 585 0566. (Mark Cheeseman)**

### Getaway

Getaway to Australia is a PC-based system that allows users to slowly browse or quickly select the kind of accommodation in Australia that suits their needs and budgets. It even includes 256-colour photos of the properties. Although planned for CD-ROM in a later version, it is now supplied on multiple diskettes.

If you want a house in the wine-growing Hunter Valley with a swimming pool and tennis court — no problem, says the manufacturer: 'Let your computer do the walking and in a few seconds it'll show you a list of all suitable properties, complete with photo.'

Getaway is claimed to be useful for anyone with special needs such as non-smoking or multiple rooms, but doesn't have time to contact property

managers and ask about these matters. It will be promoted through Australian travel publications and shows and will also be promoted as a front-end for other systems — possibly with touch-screen machines. A demo version is to be made available though bulletin board systems initially in

the US and UK as well as Australia, including CompuServe.

**Getaway to Australia, \$19.95 with a limited selection of photos, or \$49 for the full-photo set. Australian Accommodation with Character and Charm, (02) 965 4438, fax (02) 965 4408; PO Box 123, Northbridge 2063 NSW.**



### My Product Invoices

My Software Company (no relation!) produces a suite of good productivity utilities, all with a similar feel and the ability to do a good job with the minimum of fuss. I don't dispute the company's claim that you can learn the essentials of any of their software in five minutes — I did just that, being able to get up and running without the manual, although when I got down to quite complex operations

the book stepped me through simply and easily.

My Product Invoices is a clever program to track and invoice product orders for a business and does it very well. It suits small to medium sized businesses, offering an unlimited number of customer files, and its many report features offer print-outs sorted by Product, Customer, Sales Rep, Territory and so on. It has a

special Profitability Analysis function to show your profit margins. A well laid out screen with drop down menus has spots to enter all relevant information on an incoming order: customer details, discount applicable, product details, tax applicable and the like, and it accepts a numbering system for orders.

At delivery time those details are called up to print an invoice, even allowing you to invoice a part delivery, with back orders being tracked automatically. The computer adds up all the figures, thus eliminating human error, so it's fool proof (as long as your own entries were correct). Account details are also covered, and a special spot shows payments 30, 60, or 90 days outstanding so that you can track debtors.

My Product Invoices does everything I could think of in respect of order logging, invoicing, and receipting and, whilst it can all be done on plain tractor-feed paper, the publishers even offer a range of stationery too.

**My Product Invoices, \$99.95, is distributed by Electronic Arts, (075) 911 388.**

Along with the invoicing program, Electronic Arts also sent me the first Windows program I've seen from this company and it's a beauty. Both home and business users will love it as it does everything from mailing and shipping labels, through price tags and product labels, to audio and video cassette labels and much more. And it does it on dot matrix and laser printers, and any Windows supported printer with borders, lines and boxes plus graphics if you wish. There are 50 clip art images supplied and the program allows importing of Click Art and other graphics in EPS, PCX, BMP, WMF, TIFF, and GIF formats. You may also import data from industry standards like Lotus, Excel, Quattro Pro, Microsoft Works, dBase and other popular packages.

Labels are designed right on your screen, using the mouse





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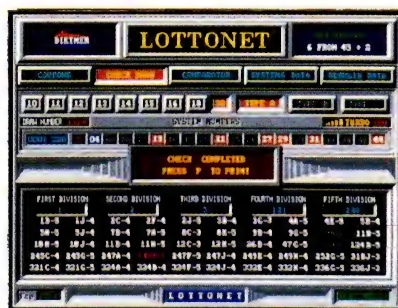
Melbourne based software company DIETNER, produced World's first, fully integrated, totally user friendly computer program which undisputably, offers the best possible winning method ever invented. Absolutely nothing else, including full cost SYSTEM Entries, could provide you with better or more affordable chances of winning. So, if you are an intelegant person, please take our sincere advice; save your money by not playing Lotto until you get the Lottonet program!



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Lottonet Turbo 100 (contains 9 Systems) Cost \$ 99.00, Lottonet Turbo 500 (contains 27 Systems) Cost \$ 129.00

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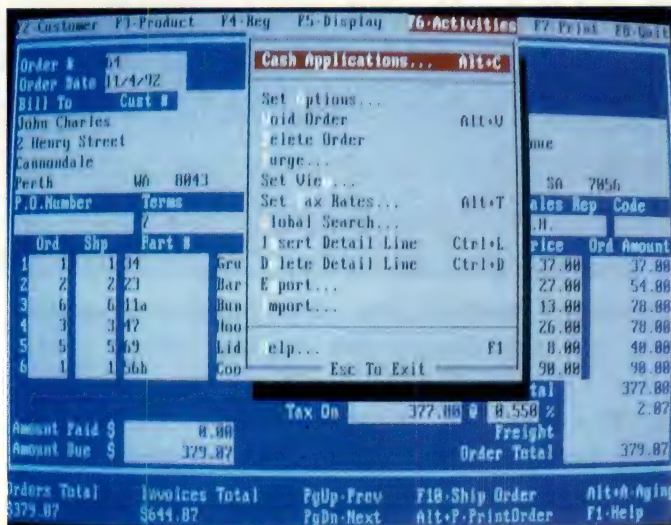
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For IBM compatible computers with 640 K RAM, Hard Disk Drive, Floppy Disk Drive and EGA-VGA colour monitors.





and normal Windows conventions and the WYSIWYG display lets you view the finished job before pressing the print button. Once designed, a label can be saved to disk for later use and an Index, Sort, and Find feature keeps track of all your label files, displaying a handy alphabetical list at screen left for mouse selection.

An automatic numbering feature gives each label in a print run a different number — great for business use and also for social club raffle tickets and the like. All Windows fonts may

be used, naturally in different sizes and styles (large type name tags for business conferences are a breeze!) and I found it just the job for printing disk labels with graphics on tractor feed blanks.

The fact that artwork and text can be dragged and dropped anywhere on the label made it so very easy to use and it's now found a permanent place on my hard drive.

**My Advanced Label Designer, \$79.95, is also available from Electronic Arts. (Eric Holroyd)**



Hot on the heels of its announcement of its impressive Hurricane laser printer, the Australian company Gestetner Lasers has announced an up-

grade controller board for virtually any laser printer using the Canon SX, RX or TX print engines, bringing any such printer up to the standard set by the

Hurricane. Printers with these engines have been made by Apple, Brother, Canon, Gestetner, Impact, Hewlett Packard, Siemens, Star and many more. There are around ten million old-technology laser printers in the world with engines compatible with the Hurricane Upgrade board which are candidates for an upgrade to fourth-generation printer technology embodied in the Hurricane board.

Like the Hurricane printer, the i960 Hurricane Upgrade board features the Intel i960 RISC processor, with a mathematics coprocessor, giving it exceptional performance in either PostScript compatible mode or Hewlett Packard PCL5 compatible mode. The board also features automatic emulation sensing and switching, and automatic port sharing.

Installation of the Hurricane Upgrade board takes less than half an hour, with ten minutes for board replacement and the remainder for cleaning and checking of the SX engine. Upgrades are normally carried out on site. The upgrade also includes replacement of the front control panel with a two-button panel that includes a liquid-crystal display with plain English messages. The board comes packaged with an installation video and, while it could be installed by an experienced end-user, Gestetner expects that most of the boards will be installed by dealers.

Gestetner Lasers has four targets for the Hurricane Upgrade board. In the Australian market a generic Hurricane product will be sold through dealers without the Gestetner brand, and will be aimed at users of existing Canon-SX engine printers from any manufacturer. Gestetner is also well-advanced in negotiations with distributors in major markets in North America and Europe who will market Gestetner Hurricane branded products to their dealers and customers, again for installation in printers from all manufacturers. The third and fourth

targets are OEMs who will be able to put their own branding on the product, and overseas licensees who will build the product and pay royalties to Gestetner. With the exception of boards manufactured overseas by licensees, all products will be manufactured in Australia by Gestetner.

**The RRP of the Hurricane Upgrade board is \$2400 (ex tax), while street prices are expected to be around \$1750 (ex tax). This is about half the cost of buying a new major-brand printer of similar performance and features. The Hurricane Upgrade board is a product of Gestetner Lasers, (02) 938 0800. (John Hepworth)**

## ZDS networking solution

Zenith Data Systems has announced an instant and affordable networking solution. Many of its notebook and desktop computers have built-in Ethernet-compatible hardware (see the review of the Z-Note in August, 1992), and Zenith is factory-installing Windows for Workgroups on the hard disks of these computers.

Graham Jones, Zenith Data System's sales director for Australia and New Zealand said that the combination of the built-in Ethernet and Windows for Workgroups means that ZDS has one of the best networking solutions in the PC industry. He went on to say that 'Sharing resources — from files to peripherals — has never been simpler or more cost-effective. With this new software, anyone will be able to set up a local area network of two or more Z-Stations and Z-Notes in minutes.'

All Z-Note and Z-Station models are also shipped with MS-DOS 5.0 and Microsoft Windows 3.1, plus client shells for Novell NetWare, Microsoft LAN Manager and Banyan Vines.

**Zenith Data Systems products are distributed by Trio International, (02) 522 6168. (John Hepworth)**



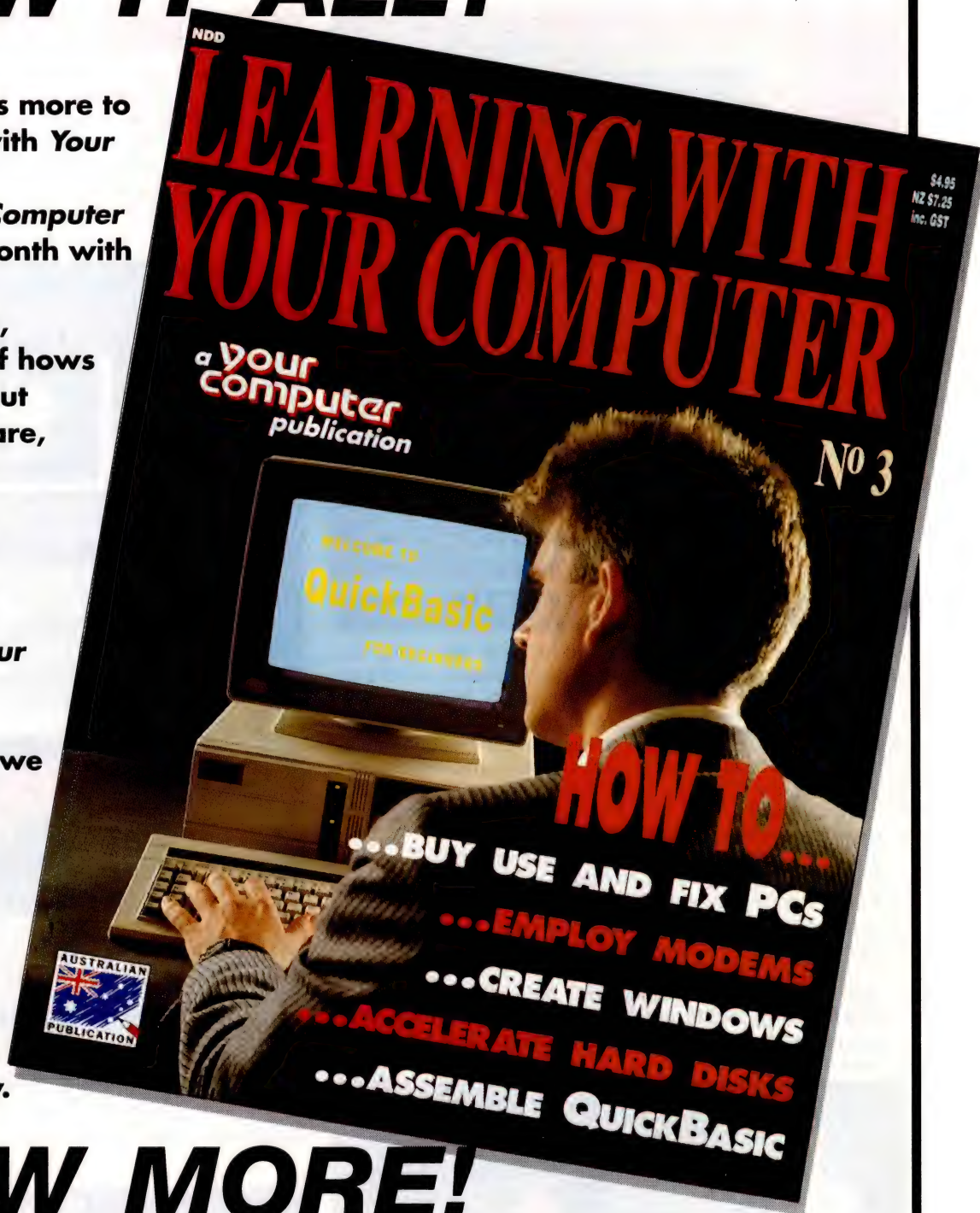
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**IMPORTANT NOTICE:** *Learning with Your Computer* Nos 1 and 2 are completely sold out.

## ON SALE NOW





## NEC goes for 66

NEC has added three new systems to its range: the PowerMate 486SX/25i (pictured) and two EISA-based PowerMates, the DX2/66e and the DX2/66Te. The 25MHz 486SX features local bus video technology and NEC's ImageSync which automatically adjusts refresh rates to eliminate flicker when used in combination with an NEC MultiSync FG-series monitor. The system is supplied with 4MB RAM (expandable to 36MB), four 8/16-bit ISA expansion slots, and four storage device bays; DOS 5, Windows 3.1 and a Microsoft mouse are supplied as standard.

The DX/2 systems also feature local bus video and have 8MB RAM (expandable to 256MB), a 128KB secondary CPU cache, a dedicated 128-bit memory bus and 486 burst-mode operation. The desktop model 66e has five half-height bays and the tower 66Te has 10. Both systems are supplied with Windows 3.1, and a Microsoft mouse; optional hard disk systems range from 120MB to 1.3GB.

**NEC 486SX/25 with floppy drive only \$3313; \$4064 with 120MB hard drive; \$4516 with 240MB hard drive. DX2/66e \$6915 (single floppy drive); DX2/66Te \$11,174 (single floppy drive). (All prices untaxed)**



## IBM Colour

Lexmark has released its first colour printer, the IBM Colour Jetprinter PS 4079. The inkjet features a RISC processor, a 32-bit bus and 4MB of memory as standard (upgradable to 16MB), with true four-colour printing. PostScript is standard with the 360 by 360dpi printer, which is rated at 'up to 0.7ppm'.

The Colour Jetprinter, \$7288 (plus tax and consumables). Lexmark International, (02) 481 1800, fax (02) 481 1880.



## Mega PC

Amstrad's Mega PC can be run in IBM-compatible mode with its 25MHz 386SX processor or Sega mode with its 8MHz 68000 processor. Based on Amstrad's new PC7386 line, the machine has 1MB RAM as standard (expandable to 16MB), VGA graphics, a 40MB hard drive, a single floppy drive, a Megadrive-compatible cartridge slot, a games paddle, mouse and joystick. The Mega PC is supplied with DOS 5, the Amstrad Desktop, Counterpoint (an application manager) and an interactive tutorial as well as six games.

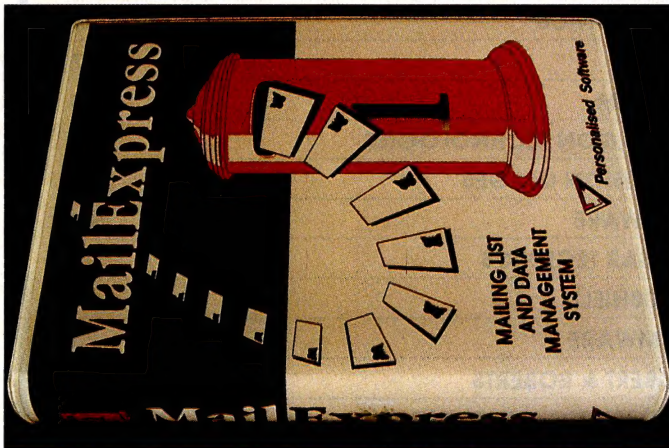
The Amstrad Mega PC \$1999. Amstrad (02) 316 5289.



## MailExpress

MailExpress lets users of MS Word and WordPerfect build and maintain customised mailing lists and databases. The Australian developed package includes automatic postcode look-up, a notepad and supports Australia Post's National Pre-Sorting Plan. The software creates a data file in dBase III+ format; the structure of the data base file can be altered with 'plain English' commands. A keyword search facility can be used to locate specific records or to identify duplicates. MailExpress requires about 2MB of hard disk space.

**MailExpress \$199 (until the end of March).** Logo Distribution (02) 905 1844, (02) 905 6408.



## Not the real world

Communication Strategies has announced the availability of a new program from Virtual Reality Laboratories, which also produces VistaPro and Distant Suns. The Mars Explorer CD-ROM has over 200MB of Viking images of the surface of Mars from 52 degrees north to 50 degrees south. The software allows users to scroll across the entire area at four different levels of detail. Images can be displayed in grey scale, 'Martian red', false colours or colours from a .pcx file in variable levels of contrast and brightness.

Distant Suns is also available on CD-ROM now. The new release includes more than

1800 images of the solar system and the universe at large. The images were sourced from those sent back to earth by various NASA spacecraft. The software can display the night sky for any year from 4713BC to 10,000AD, identify a selected object (name and distance from earth), and constellations.

**Mars Explorer CD-ROM \$115; Distant Suns CD-ROM \$239.** Communications Strategies (07) 801 2393, fax (07) 209 7976.

## Stacker 3.0

Version 3.0 of the Stacker disk compression utility installs from either Windows or DOS and its other new features include enhanced support for IGB drives, data security and

tools to monitor and tune compression and performance. Windows users can monitor their drives with the new Stackometer, a set of real time, on screen indicators showing disk capacity, compression ratio and fragmentation levels; DOS users have a new tool which shows drive statistics based on the compression ratios of various file types.

The new package has an Express Setup for both platforms and comprehensive on-line help, while Custom Setup offers such options as cluster size, EMS support and path statement modifications.

**Stacker version 3.0 \$249; upgrade from earlier versions \$75.** PC Extras (02) 319 2155.

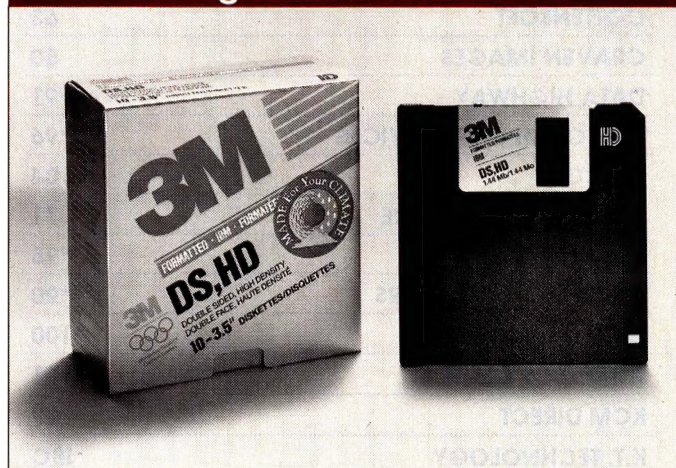
## Genius HiScan



Genius Australia has released the HiScan range of hand-held colour and black and white scanners aimed at Windows users. The new scanners are bundled with iPhoto Deluxe image processing software and GO-CR optical character recognition software. All models have a scan width of 105mm. The entry level GS4500 is a b&w scanner with a resolution of 100- to 400dpi and the ability to convert images to 256 shades of grey. The GSB105 is a true 256 grey scale scanner also with a resolution of 100- to 400dpi and a merger which enables multiple scans to be 'stitched' together to form a full page image. The top of the line is the GSC105 colour scanner which can produce 4096-colour images in resolutions of 100- to 400dpi. The scanner provides the ability to cut, retouch, paste, resize, sharpen and blur images.

Genius GS4500 \$297; GSB105 \$395; GSC105 \$882 (all prices include interface card, iPhoto Deluxe and GO-CR). Genius Australia (08) 356 7337, fax (08) 235 1756.

## Fungus-free diskettes



3M has developed a range of 3.5- and 5.25-inch floppy disks that feature an anti-fungal coating and jackets capable of withstanding temperatures up to 45 degrees C. The new range is guaranteed for 30 million passes and can be identified by a bright, circular 'Made For Your Climate' logo.

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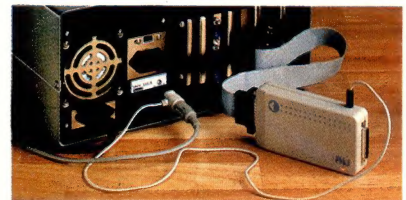
The PHd is also designed to be used globally and is independent of external mains power. It can be used on any modern DOS system with-

out the need to alter the host's configuration or settings, regardless of what country it's in.

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